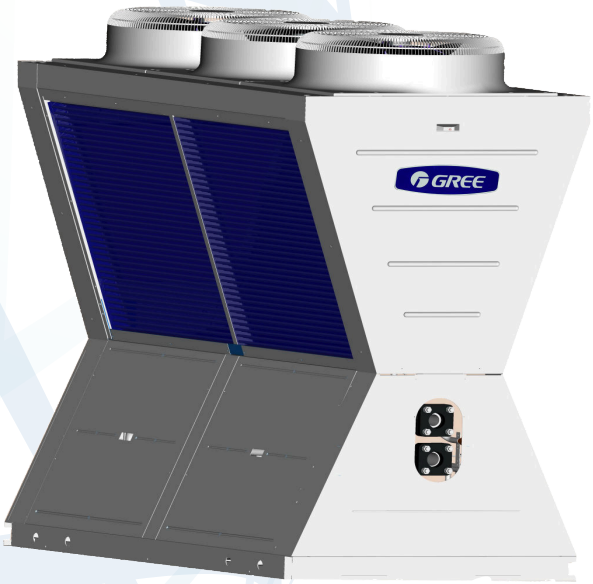


AIR COOLED SCROLL CHILLER
C SERIES SERVICE MANUAL

T1/R410A/50Hz
(GC201110-I)

GREE ELECTRIC APPLIANCES, INC.OF ZHUHAI

CONTENTS

PRODUCT 2
1 MODELS LIST 2
2 NOMENCLATURE 2
3 FUNCTION 3
4 PRODUCT DATA 4
5 SCHEMATIC DIAGRAMS 5
CONTROL 8
1 OPERATION FLOWCHART 8
2 MAIN LOGIC 10
3 WIRED REMOTE CONTROLLER 11
4 SKETCH MAP OF DIP SWITCH 15
5 CONTRASTING FORM FOR JUMPER CAP AND MODELS 15
INSTALLATION 17
1 BEFORE INSTALLATION 17
2 INSTALLATION SITE 17
3 CAUTION FOR INSTALLATION 17
4 MACHINE FOOTPRINT 17
5 DIMENSION DATA 17
6 INSTALLATION CLEARANCE DATA 18
7 TYPICAL WATER PIPING DIAGRAM 19
8 ANTIFREEZE 20
9 ELECTRIC WIRING WORK 20
MAINTENANCE 29
1 TROUBLE TABLE 29
2 FLOW CHART OF TROUBLESHOOTING 30
3 DISASSEMBLY AND ASSEMBLY PROCEDURE OF MAIN PARTS 34
4 EXPLODED VIEWS AND PART LIST 42

PRODUCT

PRODUCT

1 MODELS LIST

Units Series	Model Name	Product Code	Capacity (kW/Ton)		Power Supply	Ref.	Appearance
			Cooling	Heating			
MC (Na)	LSQWRF65MG/NaC-M	EL01500310 EL01500311	62.5/17.8	70/19.9	380-415V 3Ph-50Hz	R410A	
	LSQWF65MG/NaC-M	EL01500320	62.5/17.8	/			
	LSQWRF80MG/NaC-M	EL01500350 EL01500351	71.5/20.3	80/22.7			
	LSQWF80MG/NaC-M	EL01500360 EL01500361	71.5/20.3	/			
	LSQWRF130MG/NaC-M	EL01500290	125/35.5	140/39.8			
	LSQWF130MG/NaC-M	EL01500300	125/35.5	/			
	LSQWRF160MG/NaC-M	EL01500330	143/40.7	160/45.5			
	LSQWF160MG/NaC-M	EL01500340	143/40.7	/			

2 NOMENCLATURE

LS	QW	R	F	65	M	G	/	Na	C	-	M
1	2	3	4	5	6	7		8	9		10

NO.	Description	Options
1	Water Chiller	——
2	Scroll Compressor	——
3	Heat Pump	Default- Cooling only R-Heat pump
4	Air Cooled	——
5	Nominal Cooling Capacity	MC(Na) Series: 65=62.5kW= 17.8 TR 80=71.5kW= 20.3 TR 130=125kW=35.5 TR 160=143kW=40.7 TR
6	Module	——
7	Product number	——
8	Refrigerant	Na–R410A
9	Series number	——
10	Voltage	M–380-415V 3Ph~ 50Hz

3 FUNCTION

The units with multi refrigerant circuits from 62.5 to 143 kW have outstanding benefits that make this product effective for a variety of applications. The units are shipped from the factory completely ready for installation and use. Each unit is pressure-tested, evacuated, and fully charged with R410A, and has an initial oil charge. After assembly, a complete operation test is performed with water flowing through the cooler to assure that the refrigeration circuit operates correctly.

The units can be installed on the rooftop, ground outside and so on instead of being equipped within a special machine room. It can be widely applied in new built or reconstructed industry and civil-building project, such as hotel, apartment, restaurant, office building, shopping mall, theater, gymnasium, hospital and so on, as well as supplies required cooling water for factories in technical process of producing, so it's especially suitable for some special locations where there are high-level requirements for noise and environments and where cooling tower are difficult to be installed.

◆ **Any module as master module design:** By conveniently plugging a manual operator into any one of units in linkage, such unit can operate as a master module to communicate with other units and coordinate the whole system to work in a specified way. This is one of proprietary technologies related to GREE Module Unit. On the other hand, products by other manufacturers, which only allow a fixed unit as the master module, are subject to the fact that the whole system would fail to work if the master module is out of order, thus it is inconvenient to debug and maintain.

◆ **Super-compatibility:** units in same model can be combined, and units in different models can also be combined. A maximum of 16 modules can be combined for each system.

◆ **Totally enclosed scroll compressor:** compared with other type compressors on the same level of cooling capacity, this compressor has many advantages such as having less quantity of moving parts, smaller moment of rotation, less noise and vibration, and higher reliability and efficiency.

◆ **Super-protection:** the advanced microcomputer control system is fully featured in safety and protection and has a powerful fault self-diagnosis function.

◆ **High reliability:** famous and high quality branded cooling fitting is adopted, and meticulous design and elaborate fabrication in coordination with the multi-cooling system design are realized, all of which have improved operating reliability effectively.

◆ **Low noise:** low operating noise and less vibration make the unit suitable for a wide variety of works.

◆ **Low maintenance cost:** the special structure of the unit makes maintenance very convenient and maintenance cost very low.

◆ **Gapless modularized combination:** the unique X-shape structure design ensures a real gapless modularized combination of units, and is convenient for maintenance and repair, and also significantly saves installation space.

◆ **Silent mode:** according to user’s requirement, the unit can automatically convert to the silent operating mode, not only saving energy, but also creating a comfortable and silent living environment.

◆ **Equalization technique for compressor operation:** the unique technique applied to balanced operation among compressors ensures each compressor in a system will take turns to run, thereby greatly prolonging the lifetime of compressor.

◆ **Humanized operating design:** through programmable setting, when the unit is working at ambient temperature that exceeds the allowable design range, a humanized friendly prompt will appear on the display screen.

4 PRODUCT DATA

4.1 Product Data at Rated Condition

Models		Cooling Only	LSQWF__MG/NaC-M			
			65	80	130	160
		Product Code	EL01500320	EL01500360 EL01500361	EL01500300	EL01500340
		Heat Pump	LSQWRF__MG/NaC-M			
			65	80	130	160
		Product Code	EL01500310 EL01500311	EL01500350 EL01500351	EL01500290	EL01500330
Nominal Capacity	Cooling	kW	62.5	71.5	125	143
		TR	17.8	20.3	35.5	40.7
	Heating	kW	70	80	140	160
		TR	19.9	22.7	39.8	45.5
Power Input	Cooling	kW	24.8	26.7	49.6	53.4
	Heating	kW	24.1	26.7	48.1	53.3
Power Supply			380-415V 3Ph~50Hz			
Running Control			Microcomputer control, operating status display and abnormal status alarm			
Safeties			High-low pressure protection, discharge temp. protection, motor overload protection, anti-freeze, water flow protection , phase-sequence protection, compressor overload protection			
Compressor Type			Hermetic Scroll			
Refrigerant Type			R410a			
Cooler	Water Flow volume	m^3/h	10.8	12.3	21.5	24.6
		GPM	47.6	54.2	94.7	108.3
	Pressure Drop	kPa	30	35	30	35
	Heat Exchanger		High-efficient shell and tube heat exchanger			
	Max. Pressure	MPa	1			
	Water In/Out Pipe Flange Specification	mm	DN 50			
Condenser	Heat Exchanger		High-efficient fin tube type heat exchanger			
	Total fan motor power	kW	0.7×3	0.7×3	0.7×6	0.7×6
Outline Dimension	Width	mm	1100	1100	2200	2200
	Depth	mm	2265	2265	2265	2265
	Height	mm	2214	2214	2214	2214
Net Weights	Cooling Only	kg	900	1000	1780	1980
	Heat Pump		950	1050	1880	2080

Notes:

a. Nominal capacities are based on the follow conditions:

Item	Water side		Air side	
	Nominal Operating Condition		Nominal Operating Condition	
	Inlet water temp.(℃)	Outlet water temp.(℃)	Outdoor temp. (DB ℃)	Outdoor temp .(WB ℃)
Cooling	12	7	35	-
Heating	40	45	7	6

b. The operating weight of the unit is equal to 110% of its net weight.

4.2 Operation Range

Item	Water side		Air side
	Leaving Water (℃ / ℉)	Temperature Difference of Water (℃ / ℉)	Air on Condenser (℃ / ℉)
Cooling	5~15/41~59	2.5~8/37~47	5~46/41~115
Heating	40~50/104~122	2.5~8/37~47	-15~24/5~76

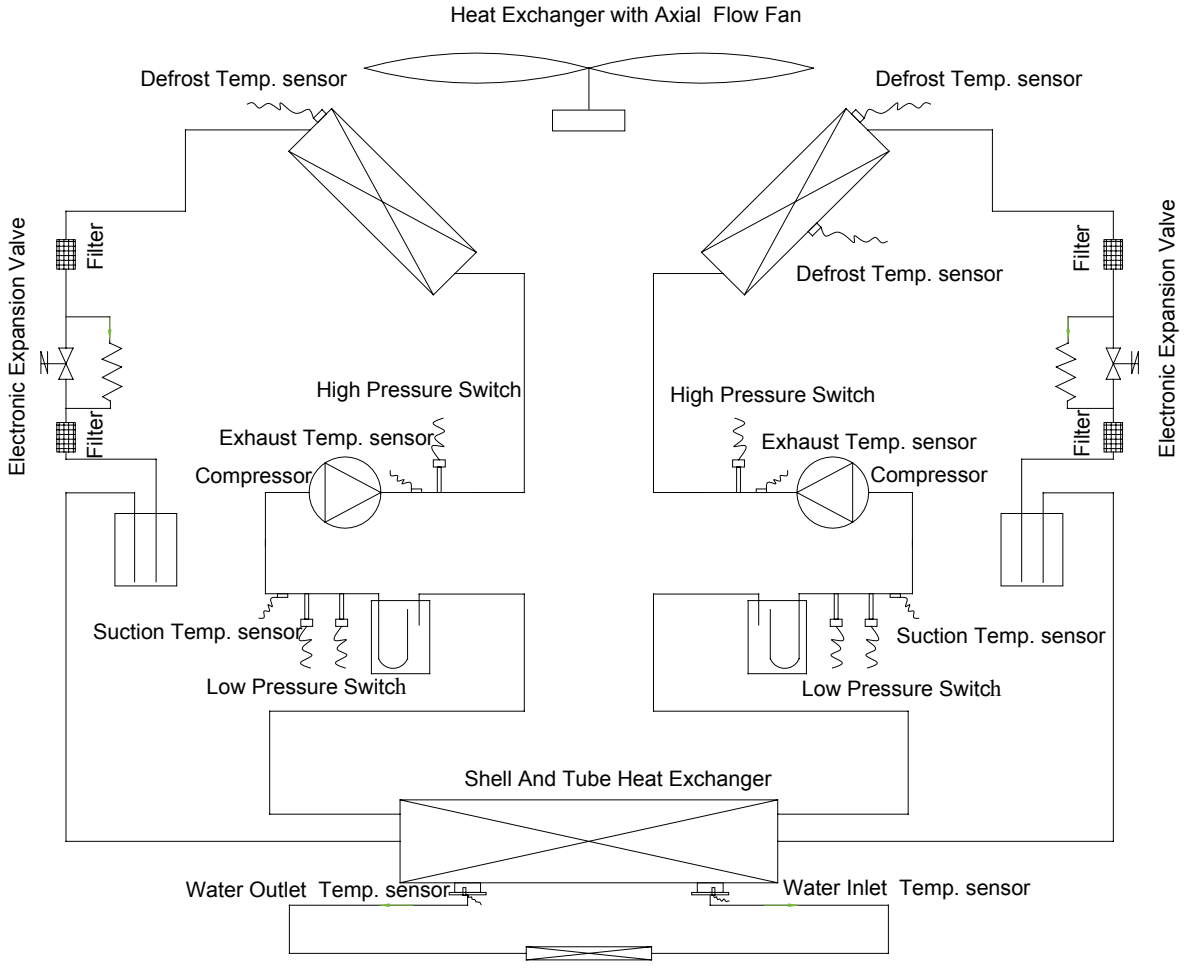
4.3 Electric Data

Model	Rated Power Supply	Compressor			Fan Motor		Total	
		Qty.	MRC each	NRC each	Qty.	NRC each	MRC	NRC
LSQW(R)F65MG/NaC-M	380-415V 3Ph~50Hz	2	30A	25A	3	1.7A	63A	56.9A
LSQW(R)F80MG/NaC-M	380-415V 3Ph~50Hz	2	35A	29.1A	3	1.7A	76.9A	65.1A
LSQW(R)F130MG/NaC-M	380-415V 3Ph~50Hz	4	30A	25A	6	1.7A	127.9A	113.8A
LSQW(R)F160MG/NaC-M	380-415V 3Ph~50Hz	4	35A	29.1A	6	1.7A	144.4A	130.2A

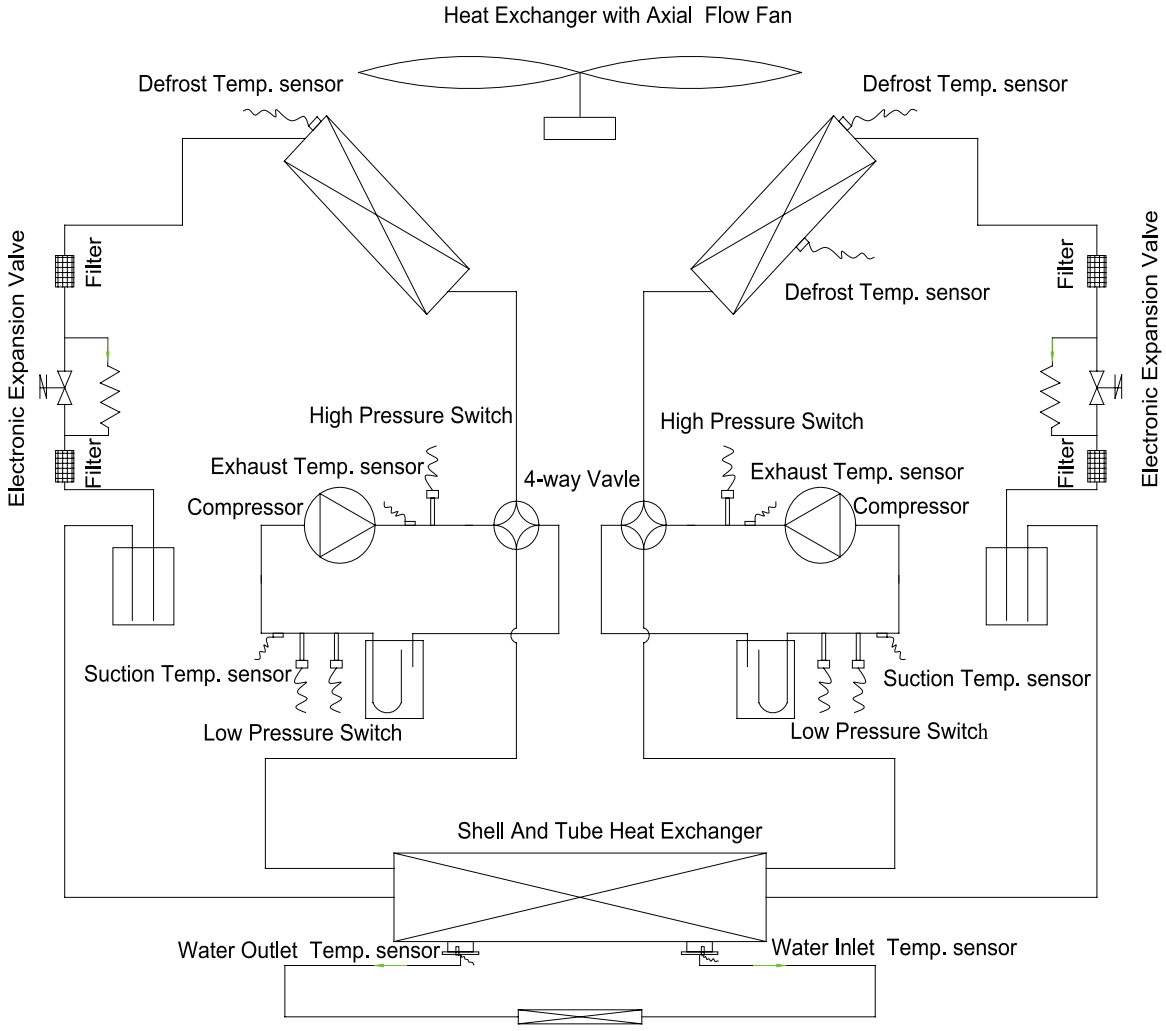
Notes:
MRC: Maximum running current (A).
NRC: Nominal running current (A).

5 SCHEMATIC DIAGRAMS

5.1 Cooling Only



5.2 Heat Pump

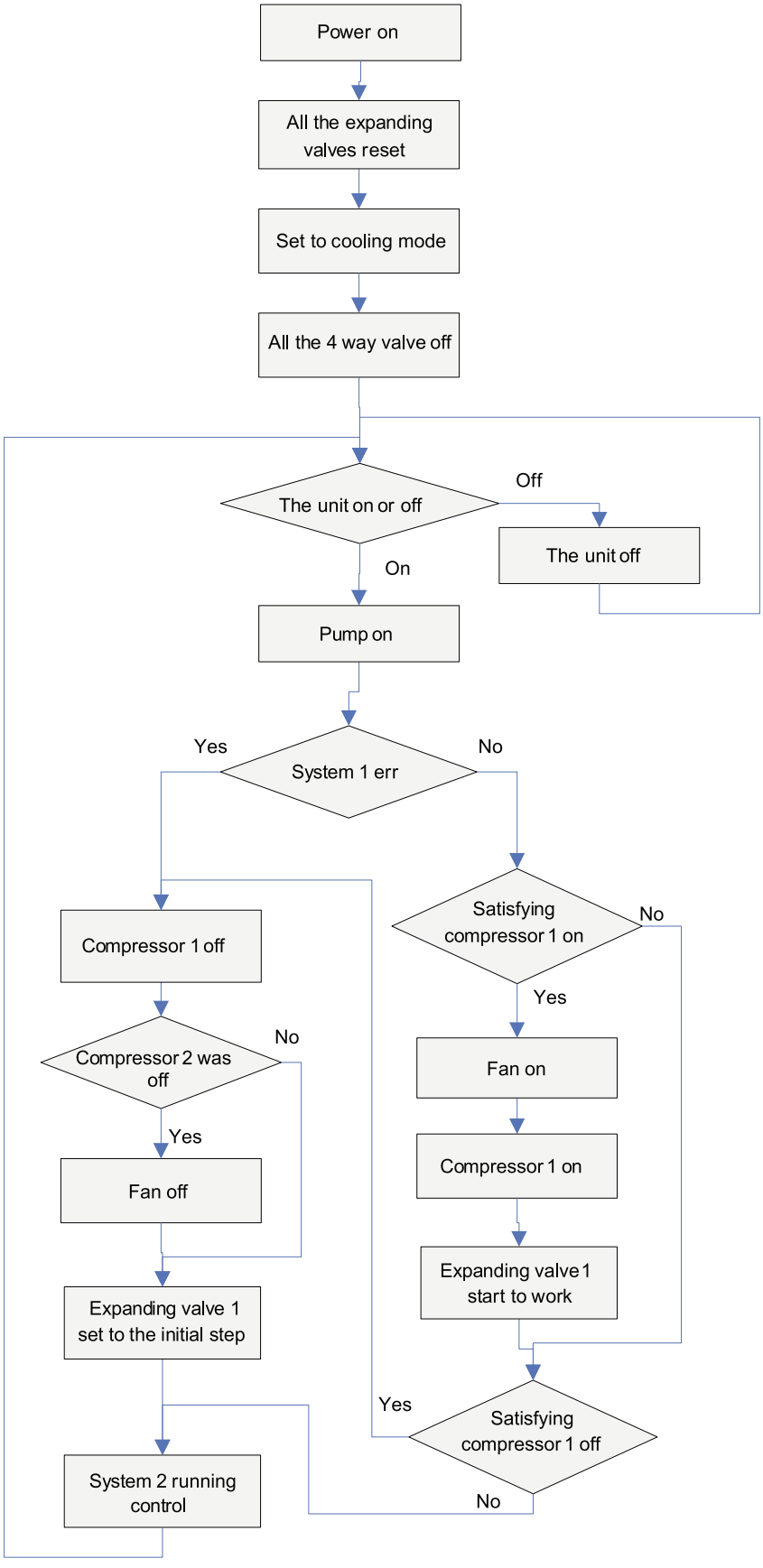

Heat Exchanger with Axial Flow Fan
Defrost Temp. sensor
Defrost Temp. sensor
Defrost Temp. sensor
Electronic Expansion Valve
Filter
Filter
Filter
Filter
Electronic Expansion Valve
High Pressure Switch
High Pressure Switch
Exhaust Temp. sensor
4-way Vavle
Exhaust Temp. sensor
Compressor
Compressor
Suction Temp. sensor
Suction Temp. sensor
Low Pressure Switch
Low Pressure Switch
Shell And Tube Heat Exchanger
Water Outlet Temp. sensor
Water Inlet Temp. sensor

CONTROL

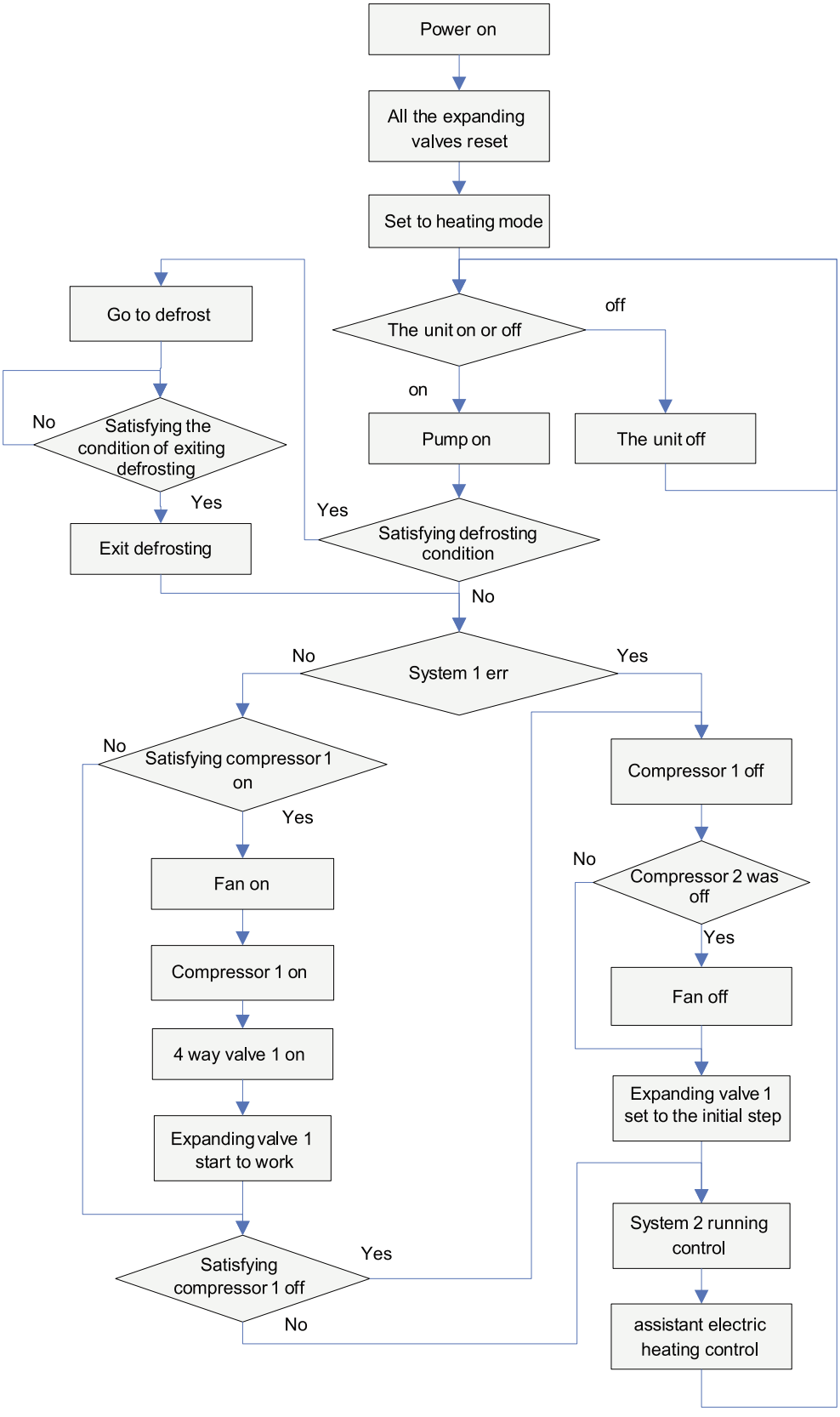
CONTROL

1 OPERATION FLOWCHART

1.1 Cooling Operation



1.2 Heating Operation (including defrosting, electric heating)



2 MAIN LOGIC

2.1 Cooling Mode

2.1.1 Control of Compressor

(1) Start-stop Control--- “first start, first stop; first stop, first start”

During running of the unit, the compressor is numbered instantly. It is controlled according to the principle of “first start, first stop; first stop, first start”.

(2) Water Temperature Drop (Rise) Rate Control

The water temperature interval is the main control, while the temperature drop (rise) rate is the auxiliary control. This can adapt to the load variation of the terminal, keeping water temperature stable and avoiding fierce variation. In this control mode, the system is based on the temperature and temperature drop rate: when the water temperature is too high and if the temperature drop is rapid, it means the output load is bigger than the terminal load. In that case, it is not necessary to startup the other compressor. The temperature interval and temperature drop is decided by experience, other theories and test so that the water temperature can be kept stable and frequent stop can be avoided.

2.1.2 Anti-freezing Protection

For each module, when the anti-freezing temperature is lower than the required value for protection, the anti-freezing protection will start while the compressor of this module will stop. When the anti-freezing temperature is higher than the required value for resume, this system will eliminate the anti-freezing protection.

When the anti-freezing temperature is between the above two temperature, it will not affect the anti-freezing protection.

If the unit is low temperature unit, the anti-freezing protection is invalid.

2.1.3 Stop of the Unit

Stop the unit manually or via timer: the compressor stops and then the fan stops. EXV is maximum and then adjusted to the initial steps. After certain control time, the water pump will stop.

Stop the unit upon reaching a temperature spots: the compressor stops and then the fan stops (on condition that both compressor stops). EXV is maximum and then adjusted to the initial steps. The water pump will not stop.

Disorderly closedown: the compressor stops and then the fan stops (except the malfunction of the fan). After the corresponding compressor stops for a period, EXV is maximum and then adjusted to the initial steps. The water pump will not stop.

2.2 Heating Mode

2.2.1 **Control of Compressor**

The control principle is the same with that of cooling mode.

2.2.2 Superheat Protection

For each module, when the superheat temperature is higher than the required value for protection, the superheat protection will start while the compressor of this module will stop. When the superheat temperature is lower than the required value for resume, this system will eliminate the superheat protection.

When the superheat temperature is between the above two temperature, it will not affect the superheat protection.

2.2.3 Control of Auxiliary E-heater

If the control function of auxiliary e-heater is switched on in the display board, it can be controlled automatically according to the inflow water temperature. It is necessary to set an interval to restart the e-heater.

When the temperature detected by inflow water temperature sensor is ≤T1, the second group of auxiliary e-heaters will work.

When the inflow water temperature is ≥T2, the second group of auxiliary e-heaters will stop.

When the inflow water temperature is between the above two temperature, the second group of auxiliary e-heaters remain the original state.

When the temperature detected by inflow water temperature sensor is ≤T1+tr0, the first group of auxiliary e-heaters will work.

When the inflow water temperature is ≥T2+tr1, the first group of auxiliary e-heaters will stop.

When the inflow water temperature is between the above two temperature, the first group of auxiliary e-heaters remain the original state.

After startup of the unit, the auxiliary e-heater will work after all the compressor runs for a certain period and all the above condition is reached.

2.2.4 **Stop of the Unit (subject to the stop of the compressor)**

Stop the unit manually or via timer: the compressor, the auxiliary e-heater and the fan stops in sequence. EXV is maximum and then adjusted to the initial steps. After certain setting time, the four-way valve will be de-energized and the water pump will stop.

Stop the unit upon reaching the temperature spots: the compressor stops and then the fan stops. EXV is maximum and then adjusted to the initial steps. The four-way valve will remain the original state and the water pump will not stop.

Disorderly closedown: the compressor stops and then the fan stops (unless the fan is wrong). After the corresponding compressor stops for a period, EXV is maximum and then adjusted to the initial steps. The water pump will not stop while the four-way valve will remain the original state.

2.3 Anti-freezing Running

Under the stop state of any mode (except manual defrosting mode), the automatic anti-freezing function can be switched on via the display board. The defaulted setting of this function is OFF.

For all the modules that reach automatic anti-freezing running condition, the compressor will run according to the setting condition and the regulation of “run for 6min and stop for 4 min”.

2.4 Control of Compressor

All compressors run according to the principle of “first start, first stop; first stop, first start”. For other information, refer to the control section of 2.1 and 2.2.

2.5 Control of fan

When starting up the unit, the fan will run before the compressor. After both compressors stop, the fan will stop later. During defrosting, the fan and the four-way valve will stop at the same time. When eliminating the defrosting function, the fan and the four-way valve run at the same time. There are three fans, the number of which can be decided according to the ambient temperature and throttle temperature in cooling mode. In other situation, all of the three fans will run.

2.6 Control of Four-way Valve

In cooling mode, the four-way valve is off. In heating mode, the four-way valve will run after the corresponding compressor runs. In defrosting mode, the four-way valve will be off. When eliminating the defrosting function, the four-way valve runs. When stop the unit, the four-way valve will stop after the corresponding compressor stops.

2.7 Control of Water Pump

When any of the modules needs to be started up, all the water pumps will run. When one module stops upon reaching certain temperature spots, all the water pumps remain running. When one module is stopped manually or via timer or due to malfunction, the water pump of this module remains running. Only when all the modules are stopped manually or via timer, the water pump will stop 5 min after all the compressor stops.

2.8 Control of the Electric Expansion Valve

After initial energizing of the controller, the electric expansion valve is initialized and reaches initial steps. The command of starting up the compressor is available after the initialization of the electric expansion valve. If there is starting up command after energizing, it can be valid after the initialization of the electric expansion valve.

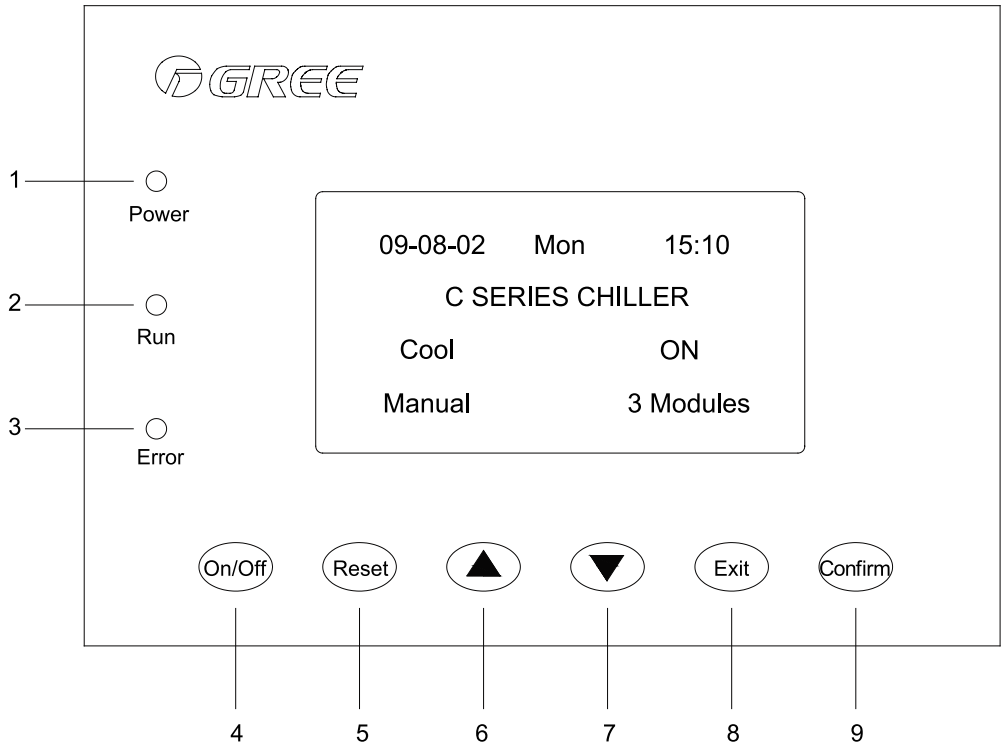
After the compressor runs for a certain period, the electric expansion valve is adjusted based on the throttle temperature, suction temperature and exhaust temperature.

3 WIRED REMOTE CONTROLLER

3.1 Function

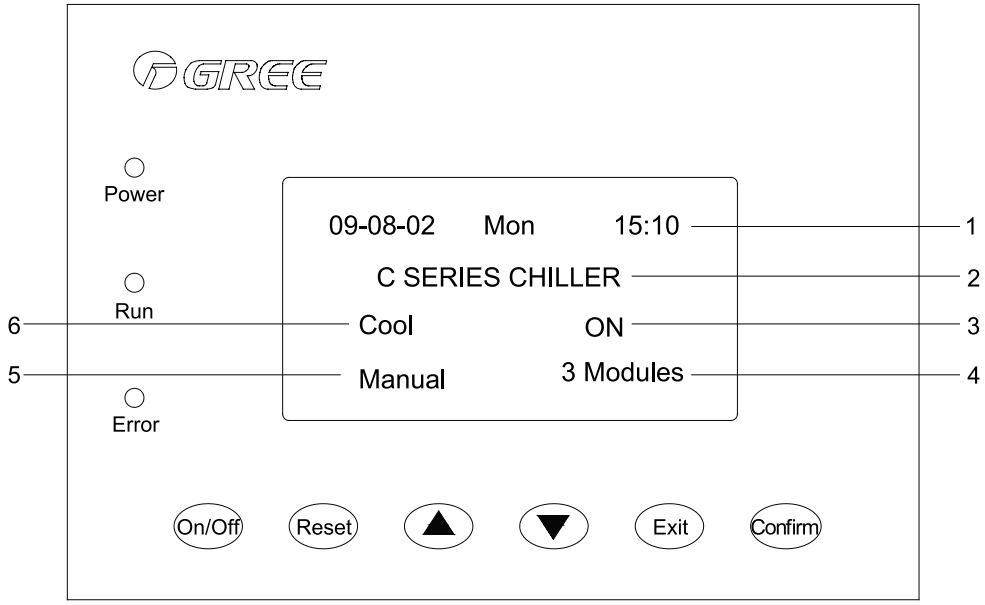
The display of modular air-cooled scroll chiller (C series) shows the running parameter in real time. It can be connected with the remote control system.

3.2 Operation View



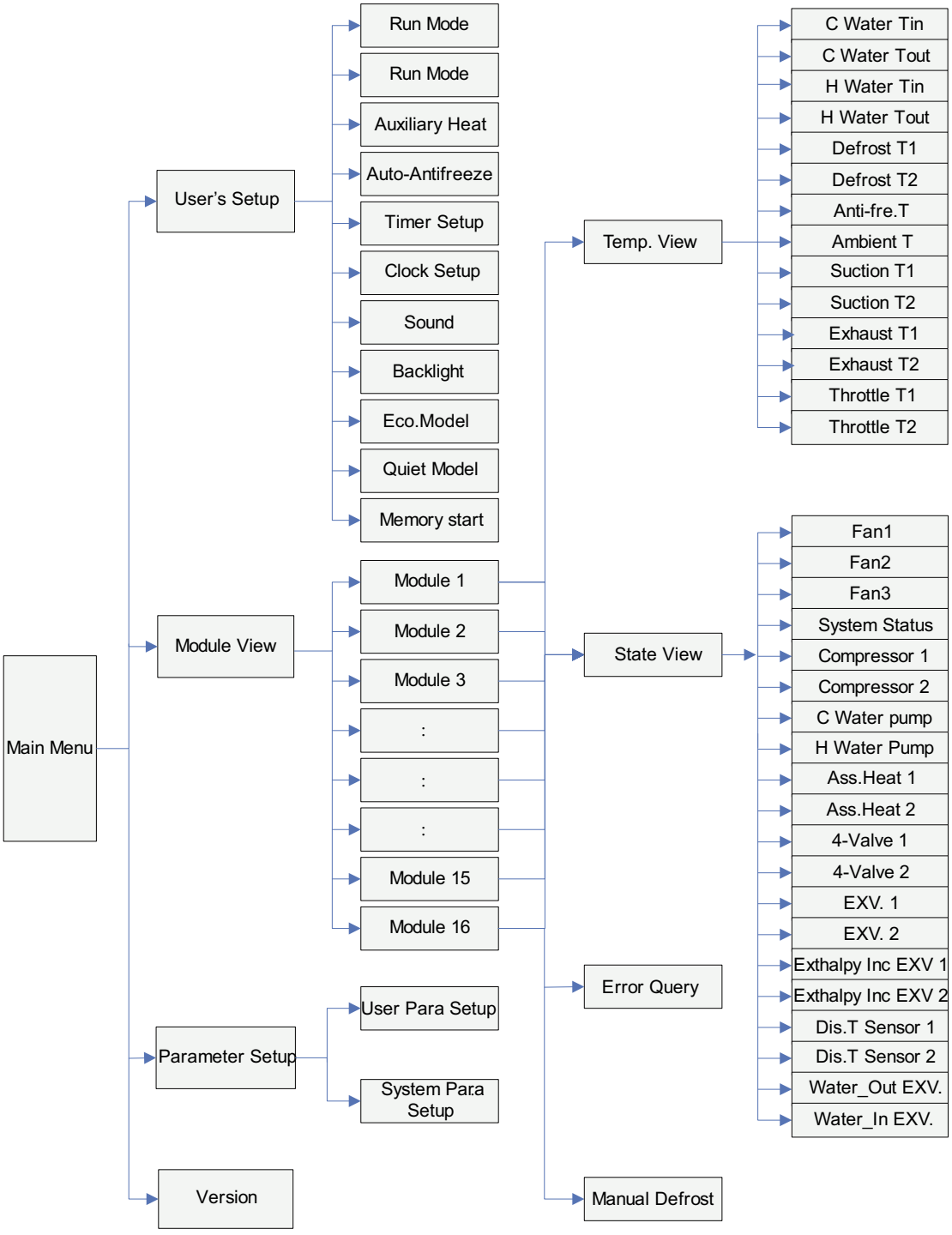
NO.	Name	Function description
1	Power LED (red)	When the display board is energized, this LED lights; otherwise, it is dark.
2	Running LED (green)	When the display board is turned on, this LED lights; otherwise, it is dark.
3	Error LED (red)	When there is malfunction, this LED lights; otherwise it is dark.
4	ON/OFF button	Control the start or stop of the unit. Under stop state, press the button (for 3s) to start up the unit. Under running state, press the button (for 3s) to stop the unit.
5	RESTORE button	Press this button to remove error and lock of exhaust temperature sensor.
6	UP button	Press this button to move the cursor upward or leftward. When modify the data, press this button to increase the value.
7	DOWN button	Press this button to move the cursor downward or rightward. When modify the data, press this button to decrease the value.
8	EXIT button	Press this button to return to last page.
9	CONFIRM button	Press this button to enter the next page. When modify the data, press this button to confirm the value and transfer the cursor.

3.3 Display View



NO.	Name	Function description
1	Time display	Display the current time.
2	Unit name	Unit name
3	Running state	Display the current running state of the unit.
4	Number of modules	The number of connected unit
5	ON/OFF mode	ON/OFF mode of the system
6	Running mode	Display the current running mode

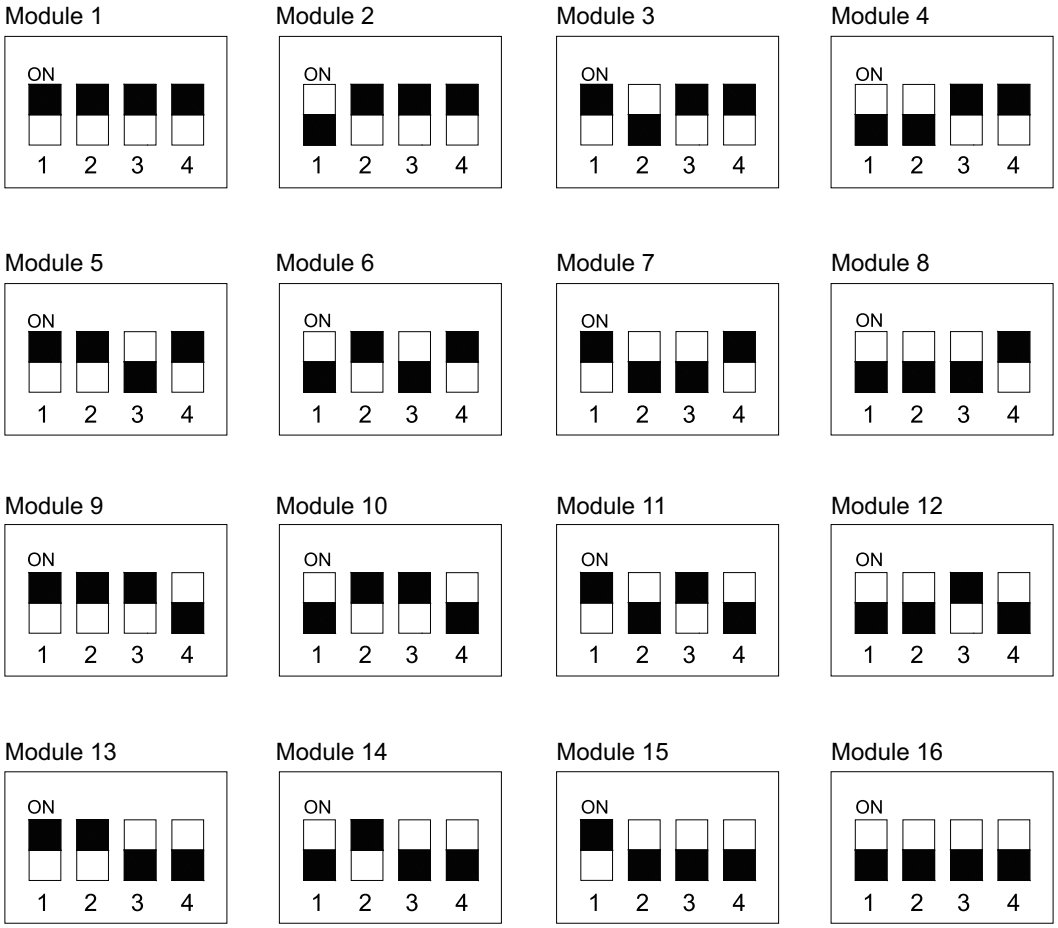
3.4 Controller Menu Structure



1) User's setup: It is the basic setting that commonly used by users, such as "mode setting" and "start-stop mode".
2) Module view: View the temperature, state, malfunction, defrosting of the module.
3) Parameter setup: It can be divided into user parameter setup and system parameter setup.
4) Version: View the version of the wired controller.

4 SKETCH MAP OF DIP SWITCH

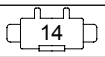
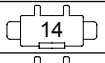
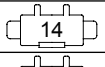
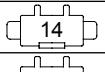
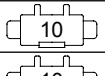
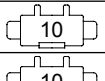
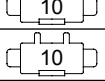
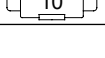
Four bit toggle switches are used for indicating hardware address (1 ～ 16) of modules, with module No. displayed in turn on the panel as Module 1, Module 2, ……, Module 16. All of the modules which are connected with one wired controller, their toggle switches indicated the address should be different. Toggle switches 1, 2, 3 and 4 are binary code, with 1 for the lowest bit and 4 for the highest bit. Comparison drawings are as follows (Caution: only in the condition of power supply shutoff can toggle switches be set):



Note: the toggle switches 1, 2 of LSQW(R)F130MG/NaC-M, LSQW(R)F160MG/NaC-M，that indicated the address should be different, but the corresponding address must be continuous.

5 CONTRASTING FORM FOR JUMPER CAP AND MODELS

The jumper cap on mainboard of corresponding models should be in accordance with that of following table, if there is some reason need to replace the mainboard, please make sure that the mainboard should be installed with the jumper cap of corresponding models.

Model	Corresponding jumper cap	Serial No. of jumper cap	Sketch map of jumper cap
LSQWRF65MG/NaC-M	No.14 jumper cap	4202300114	
LSQWRF80MG/ NaC-M	No.14 jumper cap	4202300114	
LSQWRF130MG/ NaC-M	No.14 jumper cap	4202300114	
LSQWRF160MG/ NaC-M	No.14 jumper cap	4202300114	
LSQWF65MG/NaC-M	No.10 jumper cap	4202300110	
LSQWF80MG/ NaC-M	No.10 jumper cap	4202300110	
LSQWF130MG/ NaC-M	No.10 jumper cap	4202300110	
LSQWF160MG/ NaC-M	No.10 jumper cap	4202300110	

INSTALLATION

INSTALLATION

1 BEFORE INSTALLATION

After delivery of unit to specified address, users shall organize personnel to open the case for acceptance and check.

1) Check the completeness of enclosed document and accessories according to the content of list.

2) Check the type and specifications of the unit according to the enclosed document.

3) Check the unit for damages or components.

4) Check the leak of refrigerant filled in the unit.

Should there be any damage or questions, please state the situations to the local office of our company so that the problems shall be solved.

2 INSTALLATION SITE

1) Assembly base must be located in enough ventilation space, and the load of the assembly base should be taken into account.

2) Leave room for unit assembly, operation and maintenance.

3) Ensure there is not vertical obstruction on top of the unit.

4) Ensure the drain is pre-reversed.

3 CAUTION FOR INSTALLATION

1) Ensure the connection pipe and power line assembled correctly.

2) To ensure noise and vibration satisfy the running request, there should be rubber cushion and rubber connection pipe adopted.

3) Assembly base of the unit must be cement or steel structure, which can bear the operation weight of the machine and has level surface.

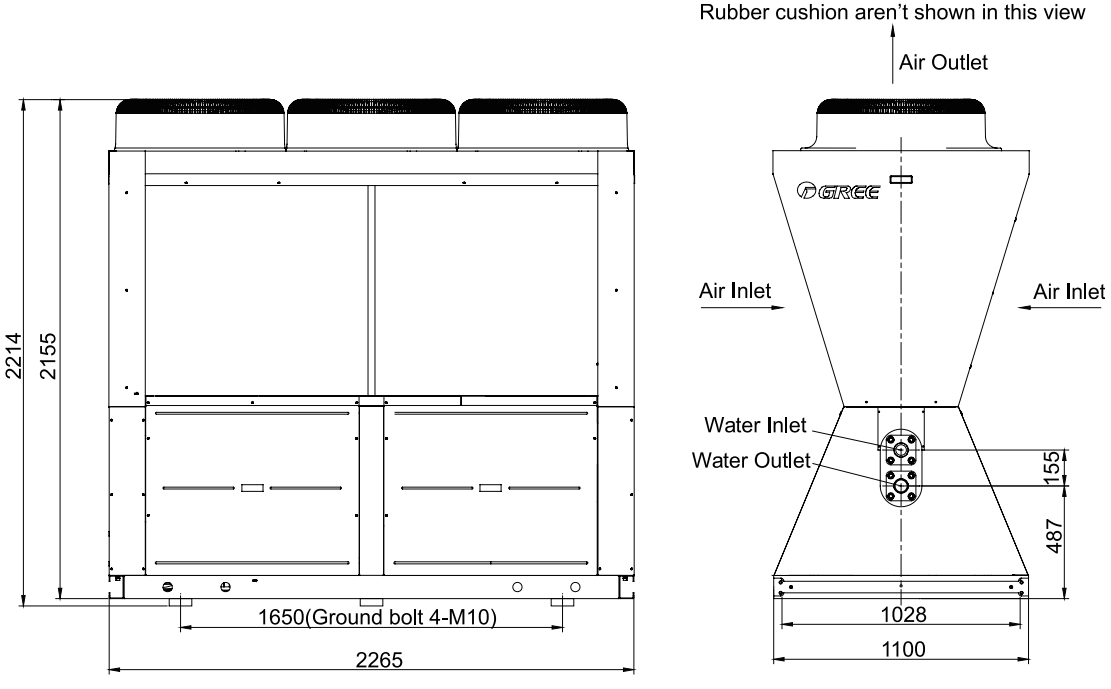
4) Assembly location shall be free from fire, flammable matters, corrosive gas or waste gas. Ventilation space shall be pre-reserved. Please take measures to reduce noise and vibration as much as possible.

4 MACHINE FOOTPRINT

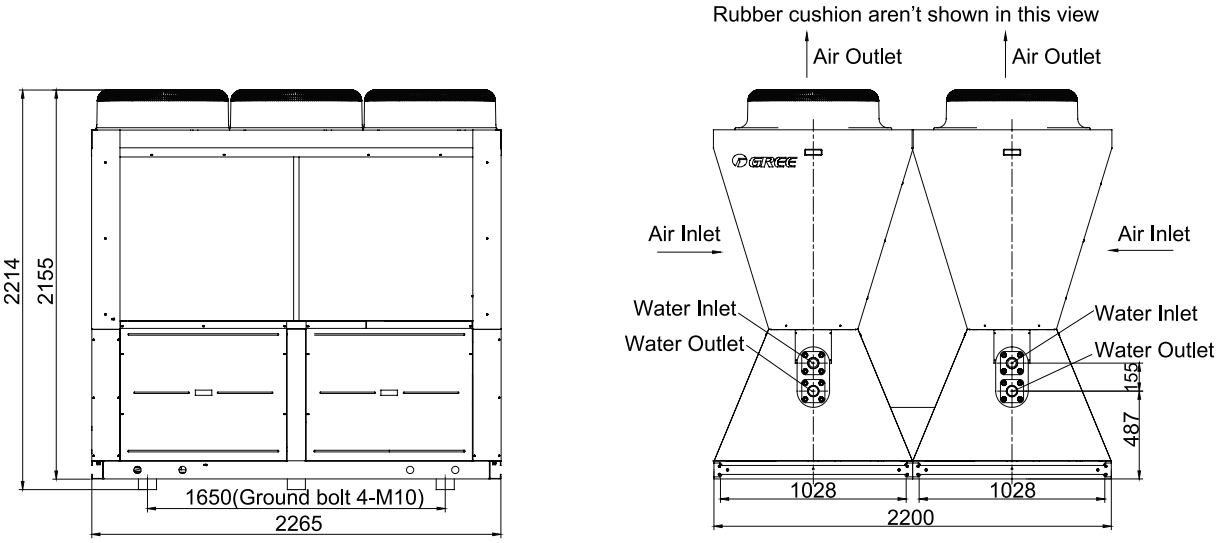
Every cell unit should adopt rubber cushion, place on either the floor of outdoor or the flat of roof, secondly, fix it on with bolt. Either or, abreast assembly on two high intensity parallel trough girder or girder, with plane operation side, and, fix it on with ground bolt.

5 DIMENSION DATA

1) Graph for the shape and size for LSQW(R) F65MG/NaC-M、LSQW(R) F80MG/NaC-M

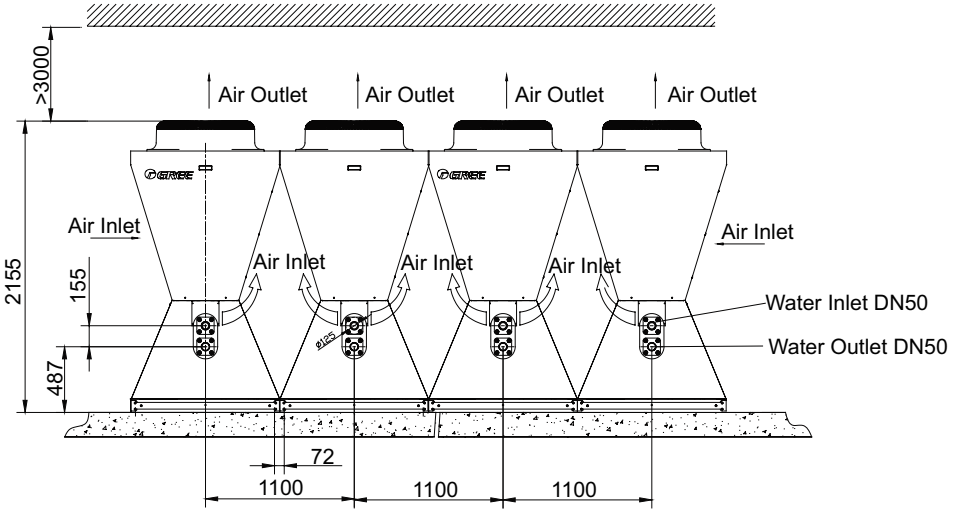


2) Graph for the shape and size for LSQW(R)F130MG/NaC-M、LSQW(R)F160MG/NaC-M

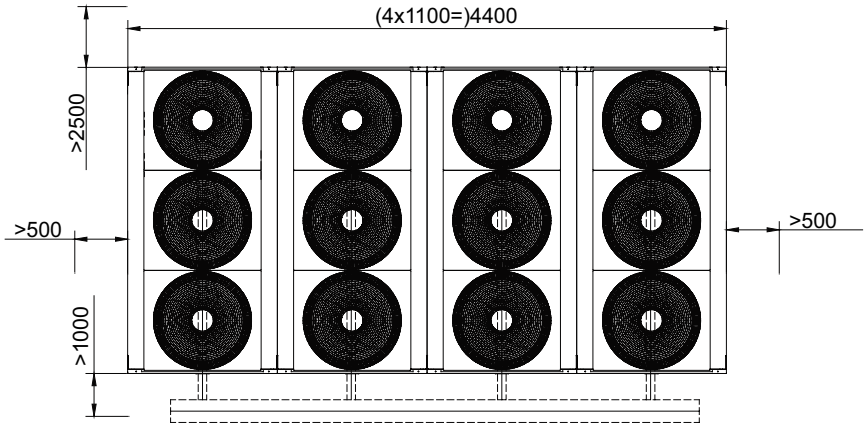


6 INSTALLATION CLEARANCE DATA

Room for unit assembly shall be open with free ventilation and without short circuit of air flow. Specific assembly sizes are shown in the graph with unit of mm.



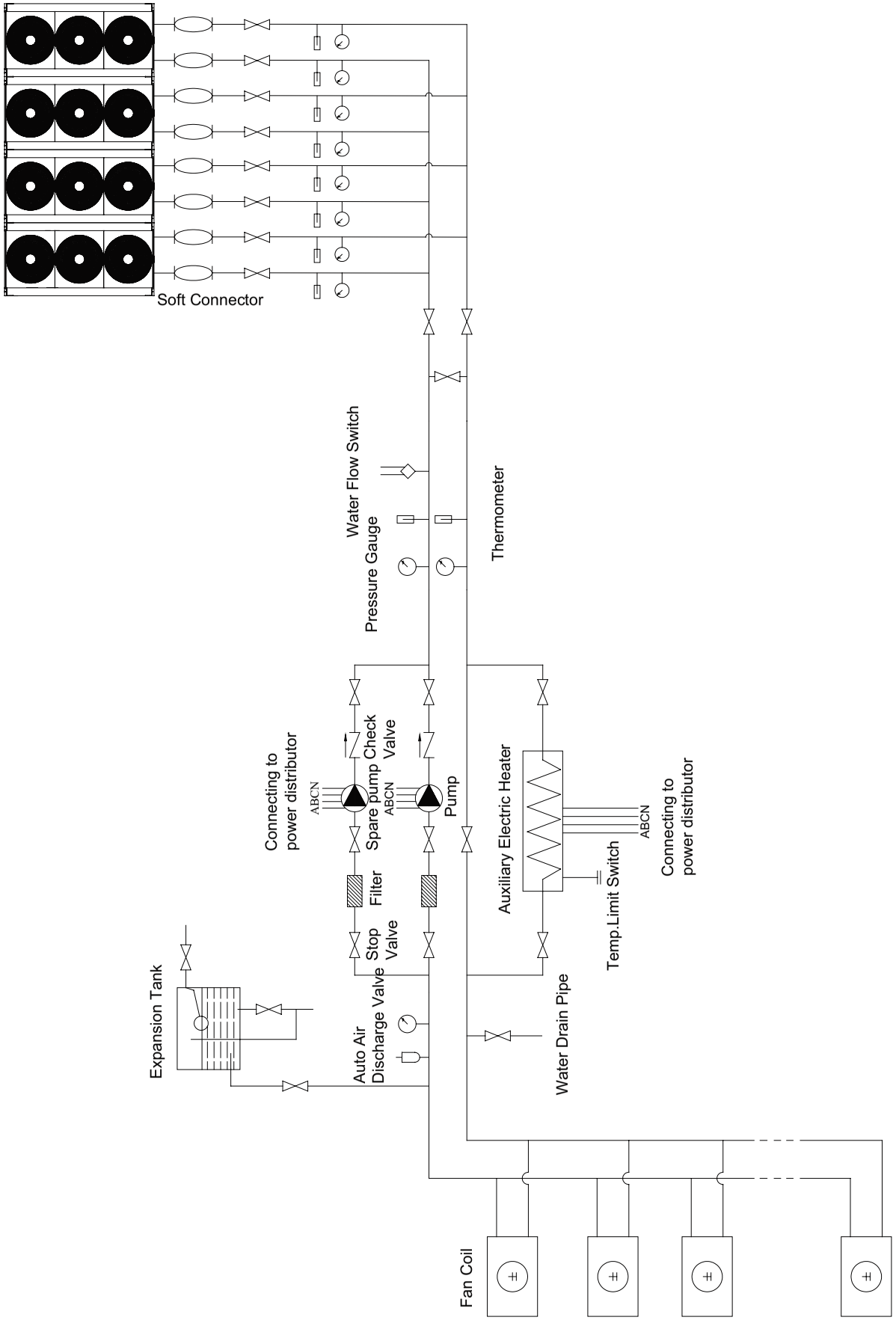
Rubber cushion pad shall be attached under the unit base which shall be fixed on the foundation with bolts.



Mounting Dimension Diagram

Attention: Don't put rotory cooler and heat pump in the same system for consideration of safety and reliability of the unit.

7 TYPICAL WATER PIPING DIAGRAM



8 ANTIFREEZE

The units can operate with a leaving chilled fluid temperature from of 41 ℉ to 59 ℉ (5℃ ~15℃). A glycol solution is required when leaving chilled fluid temperature is below 4.5℃ .The use of glycol will reduce the performance of the unit depending on concentration.

Mass Concentration %	10	20	30	40	50
Freezing Point ℃ (℉)	-3.3(26)	-7.8(18)	-13.9(7)	-21.7(-7)	-33.3(-29)
Ambient Temperature ℃ (℉)	8.3(47)	-1.7(29)	-6.7(20)	-16.7(2)	-26.7(-16)
Cooling Capacity Correction Factor	0.998	0.993	0.987	0.980	0.973
Water Flow Correction Factor	1.036	1.060	1.092	1.132	1.182
Pressure Drop Correction Factor	1.07	1.10	1.18	1.24	1.30

9 ELECTRIC WIRING WORK

9.1 Wiring Principle

1) General principles

◆ Wires, equipment and connectors supplied for use on the site must be in compliance with provisions of regulations and engineering requirements.

◆ Only electricians holding qualification are allowed to perform wire connection on the site.

◆ Before connection work is started, the power supply must be shut off.

◆ Installer shall be responsible for any damage due to incorrect connection of the external circuit of the unit.

◆ Caution --- MUST use copper wires.

2) Connection of power cable to the electric cabinet of the unit

◆ Power cables should be laid out through cabling trough, conduit tube or cable channel.

◆ Power cables to be connected into the electric cabinet must be protected with rubber or plastic to prevent scratch by edge of metal plate.

◆ Power cables close to the electric cabinet of the unit must be fixed reliably to make the power terminal in the cabinet free from an external force.

◆ Power cable must be grounded reliably.

3) Connection of control cables

◆ Sectional area of control cables is at least 1mm^2.

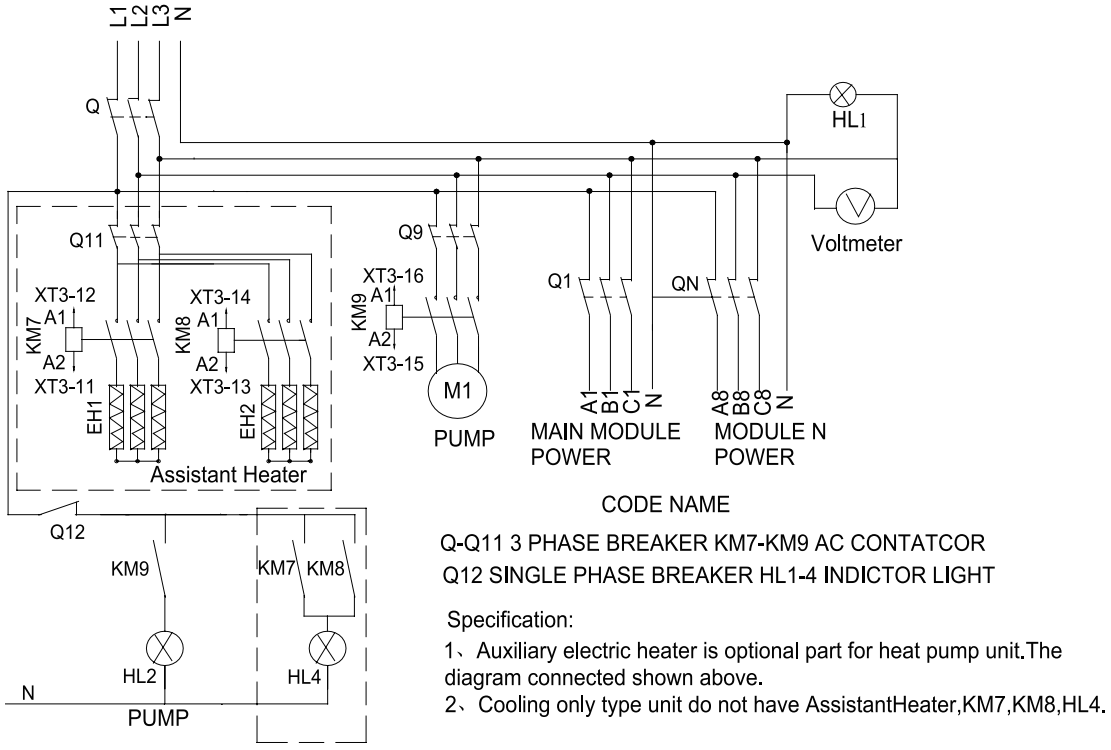
◆ Signals from water flow switches are weak current, so control cables should not be laid out side by side along with cables carrying 50V or higher voltage. If such arrangement is really impossible to avoid, space between strong and weak signals must be kept at least 150mm.

◆ Control signals (220V AC; capacity 5A) from chilled water pump and auxiliary electric heater will initiate AC contactors of chilled water pump and auxiliary electric heater. DO NOT use such control signals from chilled water pump and auxiliary electric heater to directly drive the motor of chilled water pump or electric heater.

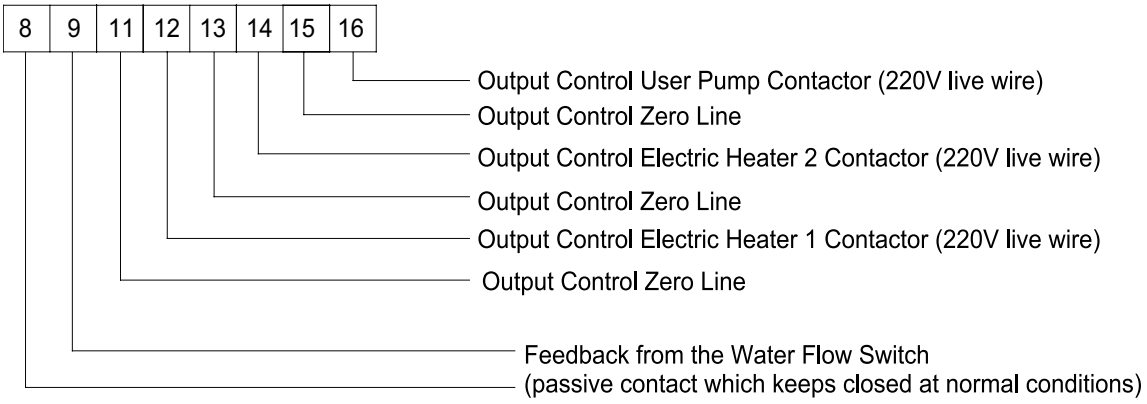
◆ Control cables to enter into the cabinet should be left with a certain surplus capacity. DO NOT just bind redundant cables into a bunch and intrude them into the cabinet.

9.2 Electric Wiring Design

1) Field wiring diagram (only for reference)



2) Wiring for External Control Users


8 9 11 12 13 14 15 16
Output Control User Pump Contactor (220V live wire)
Output Control Zero Line
Output Control Electric Heater 2 Contactor (220V live wire)
Output Control Zero Line
Output Control Electric Heater 1 Contactor (220V live wire)
Output Control Zero Line
Feedback from the Water Flow Switch
(passive contact which keeps closed at normal conditions)

Remarks:
1、Auxiliary electric heater 1 and 2 and AC contactor output control line of user's pump can be connected to 11，12，13，14，15 and 16 of the terminal （XT3）of any module.
2、The water flow swtich is allowed to be wired to terminal (XT2) 8 and 9 on the terminal block of any module.

3) Connection of Modules

a) Use the 4-core communication wires to connect each module between CN33, CN25. Use a 3-core ($2\times1mm^2$) signal wires to connect the terminal 9, 10 between each modules. Refer to the diagram shown above.

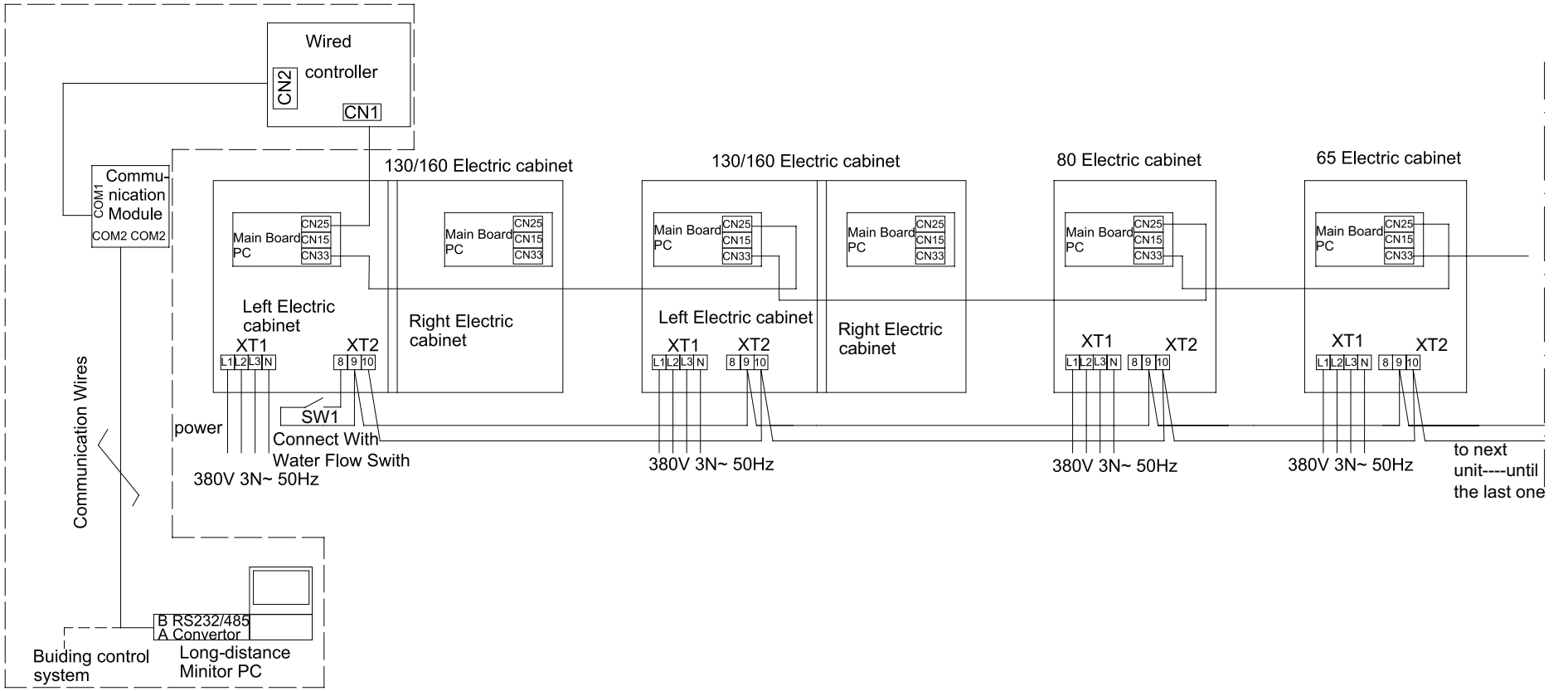
b) Use a 3-core ($2\times1mm^2$) signal wires to connect the Water Flow Switch with the terminal 8, 9 in one of the units.

c) Use a 4-core($4\times25mm^2 \sim 95mm^2$) wires to connect each module terminal XT1 L1,L2,L3,N together. Refer to the diagram shown above.

d) 130/160means: LSQW(R) F130MG/NaC-M, LSQW(R) F160MG/NaC-M; (two modules in each one).

80 means：LSQW(R) F80MG/NaC-M; (One module in each one).

65 means：LSQW(R) F65MG/NaC-M. (One module in each one).


Wired
controller
CN2
CN1
Commu-
nication
Module
COM1
COM2 COM2
130/160 Electric cabinet
130/160 Electric cabinet
80 Electric cabinet
65 Electric cabinet
Main Board
PC
CN25
CN15
CN33
Left Electric
cabinet
Right Electric
cabinet
XT1
XT2
L1 L2 L3 N
8 9 10
SW1
power
Connect With
Water Flow Swith
380V 3N~ 50Hz
Communication Wires
B RS232/485
A Convertor
Buiding control
system
Long-distance
Minitor PC
to next
unit----until
the last one

9.3. Specification of Power Supply Wire and Air Switch

Power cable specifications and air switch types in the following list are recommended for selection.

Unit Model	Power supply	Air switch capacity (A)	Min. sectional area of grounding cable (mm^2)	Min. sectional area of power cable (mm^2)
LSQW(R)F65MG/NaC-M	380-415V 3Ph~50Hz	63	16	25
LSQW(R)F80MG/NaC-M	380-415V 3Ph~50Hz	100	25	50
LSQW(R)F130MG/NaC-M	380-415V 3Ph~50Hz	125	35	70
LSQW(R)F160MG/NaC-M	380-415V 3Ph~50Hz	180	50	95

Notes:

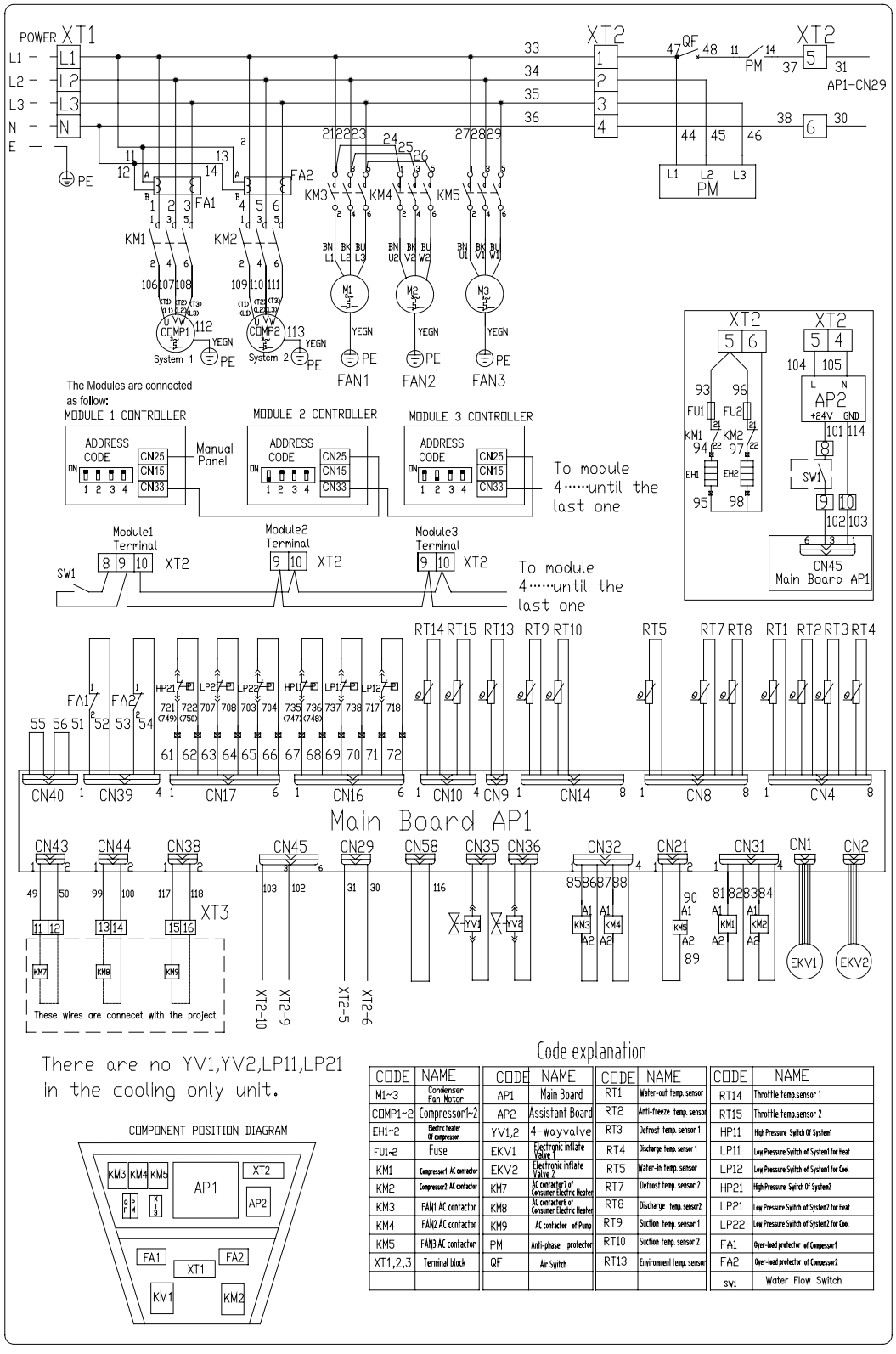
a. Power cables are copper core cable and copper connectors must be used for power cable connection.

b. If circuit breakers with leakage protection are in use, action response time must be less than 0.1 second.

c. The above selected power cable diameters are determined based on assumption of distance from the distribution cabinet to the unit less than 75m. If cables are laid out in a distance of 75m to 150m, diameter of power cable must be increased to a further grade.

9.4 WIRING DIADRAM

LSQWRF65MG/NaC-M (EL01500310)、LSQWF65MG/NaC-M (EL01500320), LSQWRF80MG/NaC-M (EL01500350)、LSQWF80MG/NaC-M (EL01500360);



There are no YV1,YV2,LP11,LP21 in the cooling only unit.

COMPONENT POSITION DIAGRAM

Code explanation

CODE	NAME
M1~3	Condenser Fan Motor
COMP1~2	Compressor1~2
EH1~2	Electric heater Of compressor
FU1-2	Fuse
KM1	Compressor1 AC contactor
KM2	Compressor2 AC contactor
KM3	FAN1 AC contactor
KM4	FAN2 AC contactor
KM5	FAN3 AC contactor
XT1,2,3	Terminal block

CODE	NAME
AP1	Main Board
AP2	Assistant Board
YV1,2	4-wayvalve
EKV1	Electronic inflate Valve 1
EKV2	Electronic inflate Valve 2
KM7	AC contactor7 of Consumer Electric Heater
KM8	AC contactor8 of Consumer Electric Heater
KM9	AC contactor of Pump
PM	Anti-phase protector
QF	Air Switch

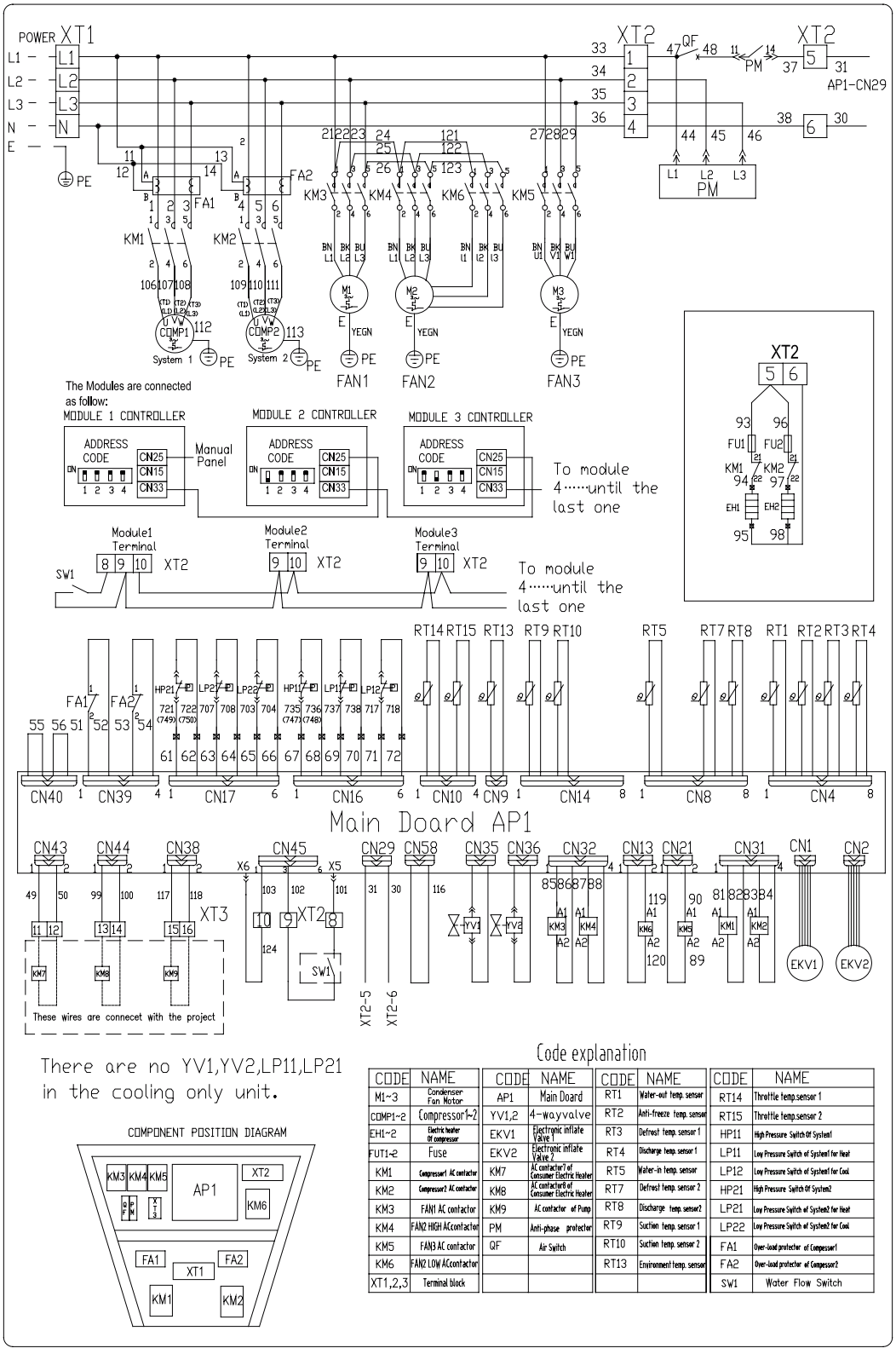
CODE	NAME
RT1	Water-out temp. sensor
RT2	Anti-freeze temp. sensor
RT3	Defrost temp. sensor 1
RT4	Discharge temp. sensor 1
RT5	Water-in temp. sensor
RT7	Defrost temp. sensor 2
RT8	Discharge temp. sensor2
RT9	Suction temp. sensor 1
RT10	Suction temp. sensor 2
RT13	Environment temp. sensor

CODE	NAME
RT14	Throttle temp.sensor 1
RT15	Throttle temp.sensor 2
HP11	High Pressure Switch Of System1
LP11	Low Pressure Switch of System1 for Heat
LP12	Low Pressure Switch of System1 for Cool
HP21	High Pressure Switch Of System2
LP21	Low Pressure Switch of System2 for Heat
LP22	Low Pressure Switch of System2 for Cool
FA1	Over-load protector of Compressor1
FA2	Over-load protector of Compressor2
sw1	Water Flow Switch

DIAGRAM 1

The diagram is only for reference and the circuit diagram attached on the unit prevails.

LSQWF80MG/NaC-M (EL01500361)



There are no YV1,YV2,LP11,LP21 in the cooling only unit.

COMPONENT POSITION DIAGRAM

Code explanation

CODE	NAME
M1~3	Condenser Fan Motor
COMP1~2	Compressor1~2
EH1~2	Electric heater Of compressor
FUT1~2	Fuse
KM1	Compressor1 AC contactor
KM2	Compressor2 AC contactor
KM3	FAN1 AC contactor
KM4	FAN2 HIGH ACcontactor
KM5	FAN3 AC contactor
KM6	FAN2 LOW ACcontactor
XT1,2,3	Terminal block

CODE	NAME
AP1	Main Doard
YV1,2	4-wayvalve
EKV1	Electronic inflate Valve 1
EKV2	Electronic inflate Valve 2
KM7	AC contactor1 of Consumer Electric Heater
KM8	AC contactor8 of Consumer Electric Heater
KM9	AC contactor of Pump
PM	Anti-phase protector
QF	Air Switch

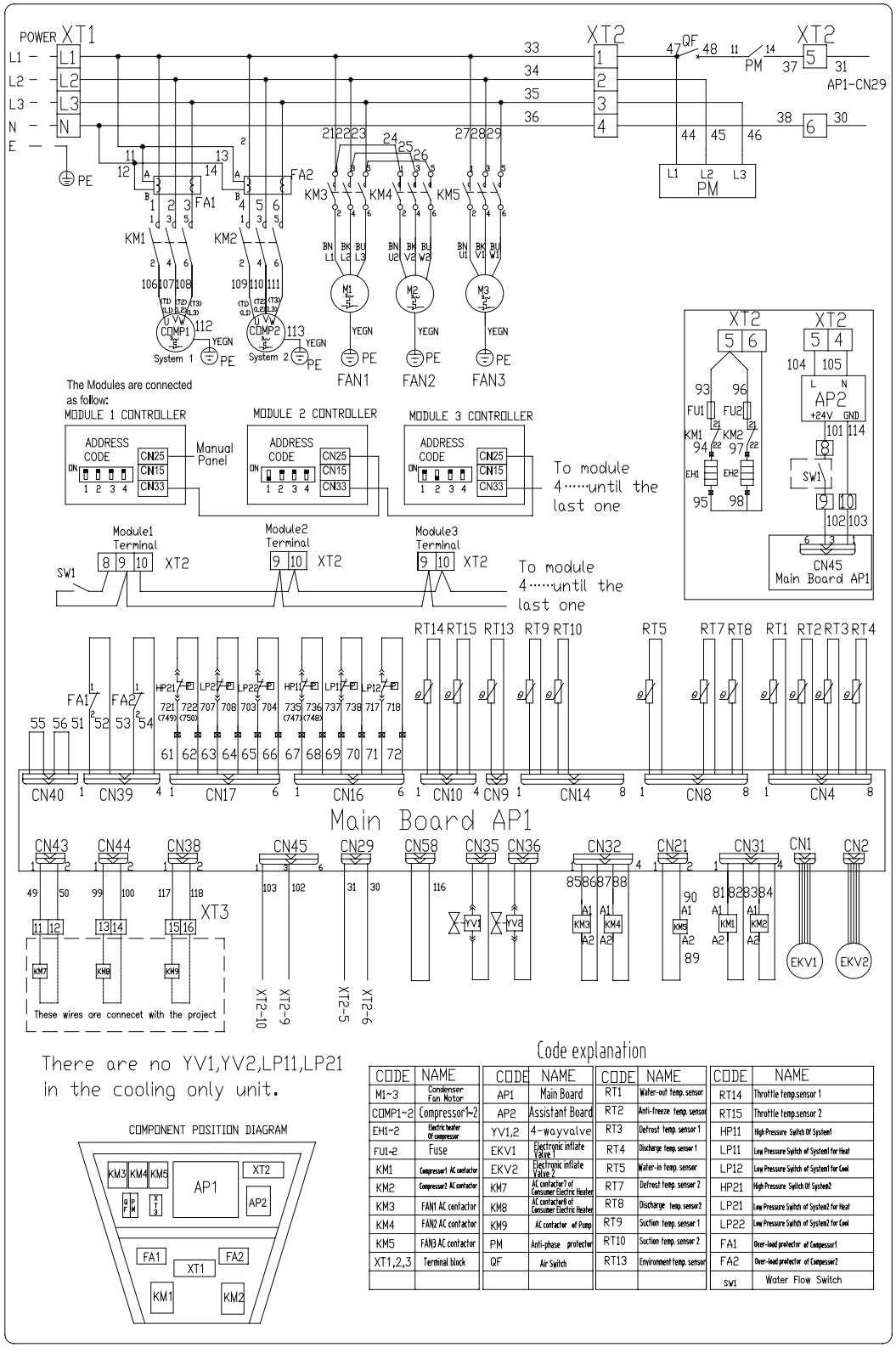
CODE	NAME
RT1	Water-out temp. sensor
RT2	Anti-freeze temp. sensor
RT3	Defrost temp. sensor 1
RT4	Discharge temp. sensor 1
RT5	Water-in temp. sensor
RT7	Defrost temp. sensor 2
RT8	Discharge temp. sensor2
RT9	Suction temp. sensor 1
RT10	Suction temp. sensor 2
RT13	Environment temp. sensor

CODE	NAME
RT14	Throttle temp.sensor 1
RT15	Throttle temp.sensor 2
HP11	High Pressure Switch Of System1
LP11	Low Pressure Switch of System1 for Heat
LP12	Low Pressure Switch of System1 for Cool
HP21	High Pressure Switch Of System2
LP21	Low Pressure Switch of System2 for Heat
LP22	Low Pressure Switch of System2 for Cool
FA1	Over-load protector of Compressor1
FA2	Over-load protector of Compressor2
SW1	Water Flow Switch

DIAGRAM 2

The diagram is only for reference and the circuit diagram attached on the unit prevails.

LSQWRF130MG/NaC-M (EL01500290)、LSQWF130MG/NaC-M (EL01500300), LSQWRF160MG/NaC-M (EL01500330)、LSQWF160MG/NaC-M (EL01500340);



Code explanation

CODE	NAME
M1~3	Condenser Fan Motor
COMP1~2	Compressor1~2
EH1~2	Electric heater Of compressor
FU1-2	Fuse
KM1	Compressor1 AC contactor
KM2	Compressor2 AC contactor
KM3	FAN1 AC contactor
KM4	FAN2 AC contactor
KM5	FAN3 AC contactor
XT1,2,3	Terminal block

CODE	NAME
AP1	Main Board
AP2	Assistant Board
YV1,2	4-wayvalve
EKV1	Electronic inflate Valve 1
EKV2	Electronic inflate Valve 2
KM7	AC contactor7 of Consumer Electric Heater
KM8	AC contactor8 of Consumer Electric Heater
KM9	AC contactor of Pump
PM	Anti-phase protector
QF	Air Switch

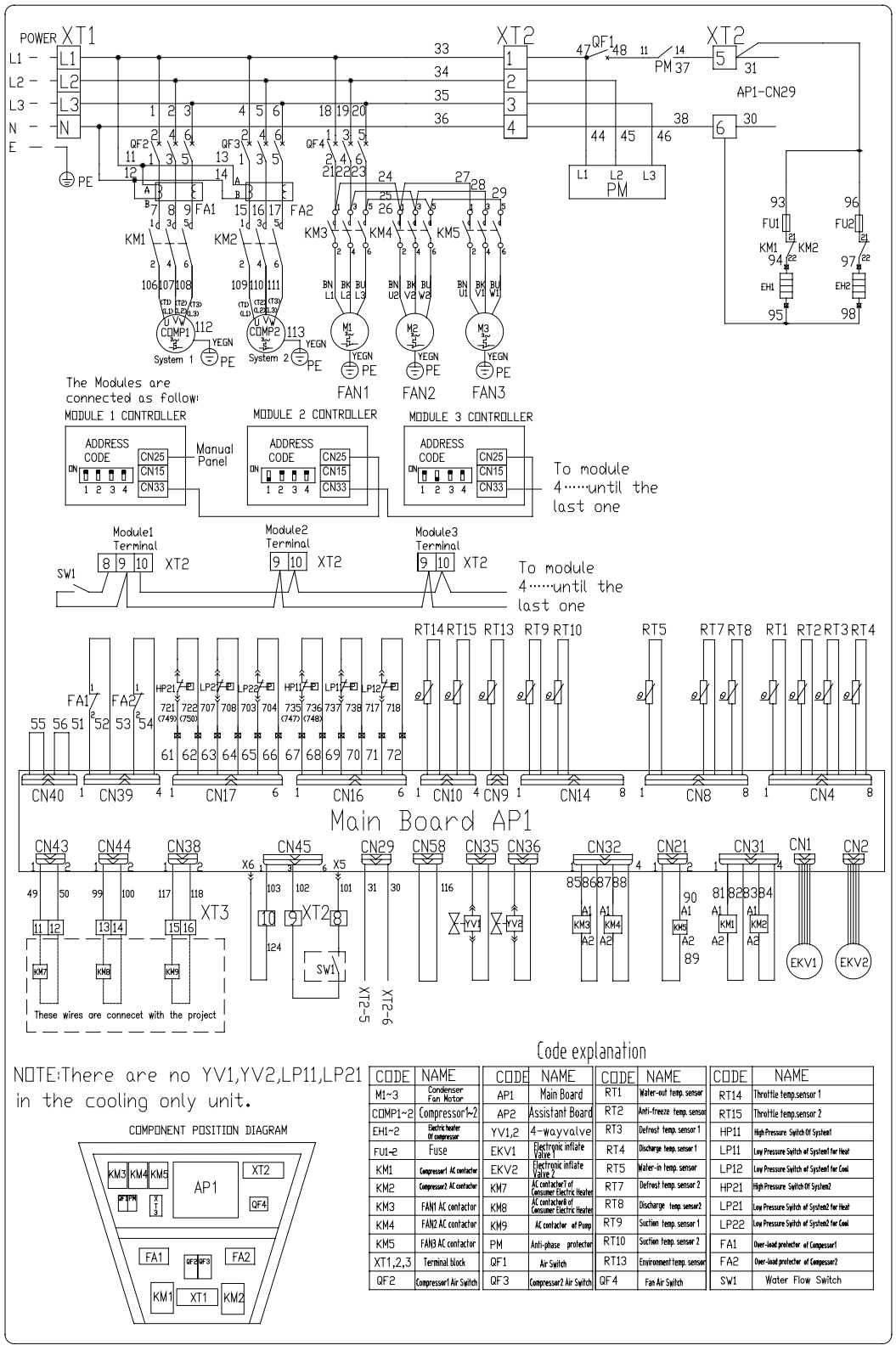
CODE	NAME
RT1	Water-out temp. sensor
RT2	Anti-freeze temp. sensor
RT3	Defrost temp. sensor 1
RT4	Discharge temp. sensor 1
RT5	Water-in temp. sensor
RT7	Defrost temp. sensor 2
RT8	Discharge temp. sensor2
RT9	Suction temp. sensor 1
RT10	Suction temp. sensor 2
RT13	Environment temp. sensor

CODE	NAME
RT14	Throttle temp.sensor 1
RT15	Throttle temp.sensor 2
HP11	High Pressure Switch Of System1
LP11	Low Pressure Switch of System1 for Heat
LP12	Low Pressure Switch of System1 for Cool
HP21	High Pressure Switch Of System2
LP21	Low Pressure Switch of System2 for Heat
LP22	Low Pressure Switch of System2 for Cool
FA1	Over-load protector of Compessor1
FA2	Over-load protector of Compessor2
SW1	Water Flow Switch

DIAGRAM 3

The diagram is only for reference and the circuit diagram attached on the unit prevails

LSQWRF65MG/NaC-M (EL01500311), LSQWRF80MG/NaC-M (EL01500351)



NOTE:There are no YV1,YV2,LP11,LP21 in the cooling only unit.

COMPONENT POSITION DIAGRAM

Code explanation

CODE	NAME	CODE	NAME	CODE	NAME	CODE	NAME
M1~3	Condenser Fan Motor	AP1	Main Board	RT1	Water-out temp. sensor	RT14	Throttle temp.sensor 1
COMP1~2	Compressor1~2	AP2	Assistant Board	RT2	Anti-freeze temp. sensor	RT15	Throttle temp.sensor 2
EH1~2	Electric heater Of compressor	YV1,2	4-wayvalve	RT3	Defrost temp. sensor 1	HP11	High Pressure Switch Of System1
FU1~2	Fuse	EKV1	Electronic inflate Valve 1	RT4	Discharge temp. sensor 1	LP11	Low Pressure Switch of System1 for Heat
KM1	Compressor1 AC contactor	EKV2	Electronic inflate Valve 2	RT5	Water-in temp. sensor	LP12	Low Pressure Switch of System1 for Cool
KM2	Compressor2 AC contactor	KM7	AC contactor7 of Consumer Electric Heater	RT7	Defrost temp. sensor 2	HP21	High Pressure Switch Of System2
KM3	FAN1 AC contactor	KM8	AC contactor8 of Consumer Electric Heater	RT8	Discharge temp. sensor2	LP21	Low Pressure Switch of System2 for Heat
KM4	FAN2 AC contactor	KM9	AC contactor of Pump	RT9	Suction temp. sensor 1	LP22	Low Pressure Switch of System2 for Cool
KM5	FAN3 AC contactor	PM	Anti-phase protector	RT10	Suction temp. sensor 2	FA1	Over-load protector of Compressor1
XT1,2,3	Terminal block	QF1	Air Switch	RT13	Environment temp. sensor	FA2	Over-load protector of Compressor2
QF2	Compressor1 Air Switch	QF3	Compressor2 Air Switch	QF4	Fan Air Switch	SW1	Water Flow Switch

DIAGRAM 4

The diagram is only for reference and the circuit diagram attached on the unit prevails

MAINTENANCE

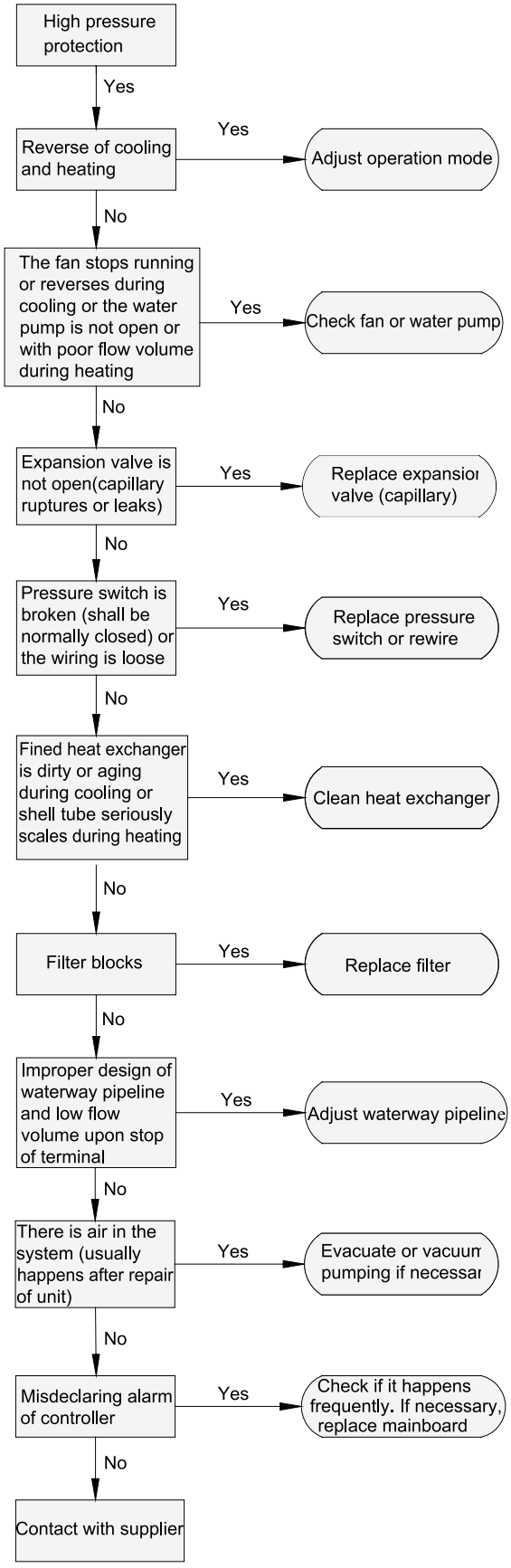
MAINTENANCE

1 TROUBLE TABLE

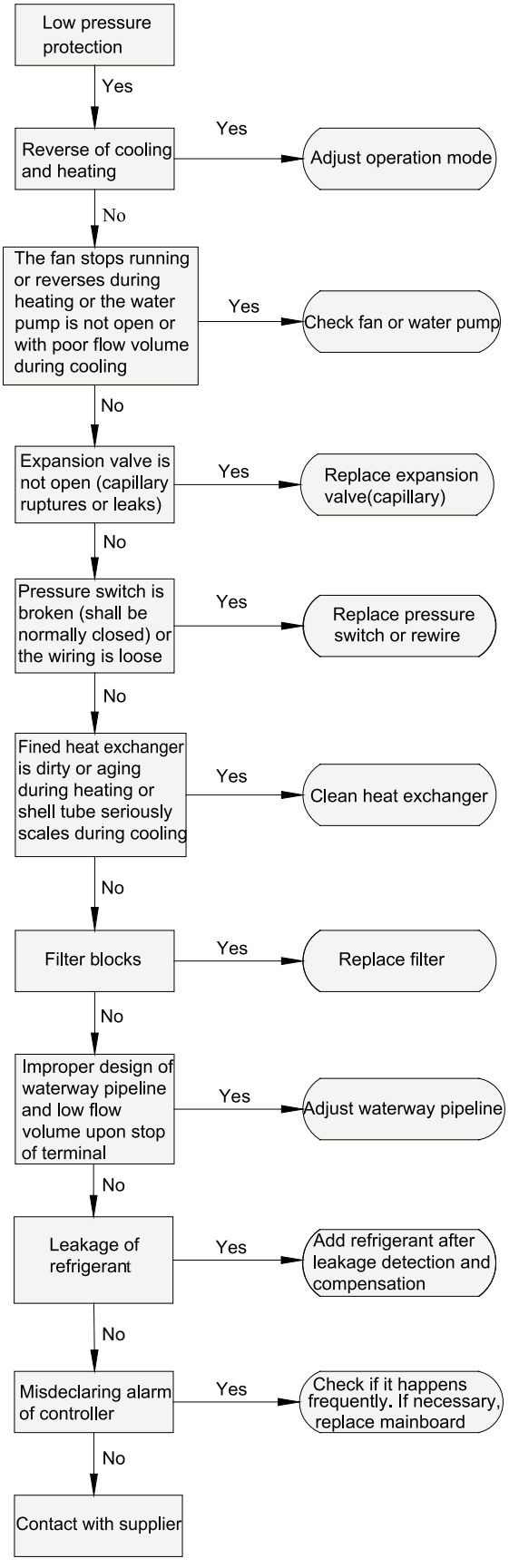
Name of Error	Source of Error Signal	Description
high pressure of compressor 1 (compressor 2)	high pressure switch of system 1 (system 2)	If the high pressure switch of compressor 1 (compressor 2) disconnects, the corresponding compressor will stop. If both compressors stop, the two fans will stop later. The error LED of the display board lights and the corresponding alarm mark will be shown in "malfunction view". The error must be removed manually before the unit resume normal running.
low pressure of compressor 1 (compressor 2)	low pressure switch of system 1 (system 2)	If the low pressure switch of compressor 1 (compressor 2) disconnects, the corresponding compressor will stop. If both compressors stop, the two fans will stop later. The error can be removed automatically for 5 times while it can not resume automatically for the 6th time. If it is detected for 3 times in one hour, it can not resume automatically. The corresponding marks will be shown in "error view". It is required to remove the error manually. When the display board is off, the low pressure will not be detected. In automatic anti-freezing and defrosting mode, after startup of the water pump, the low pressure will be detected by pressing heating low pressure button. When the display board is on, if the low pressure is lower than heating low pressure protection value, the controller will send "low pressure protection" signal. The error can not be removed unless repaired by service man. When the compressor stops running, if the low pressure is lower than heating low pressure, the controller will send "low pressure protection" signal. The error can not be removed unless repaired by service man.
discharge high temperature protection of compressor 1 (compressor 2)	discharge temperature sensor system 1 (system 2)	If the discharge high temperature protection (≥130℃ start protection; the resume value is 85℃) of compressor 1 (compressor 2) is detected, the corresponding compressor will stop. If both compressors stop, the two fans will stop later. The error LED of the display board lights and the corresponding alarm symbol will be shown in "malfunction view". The error must be removed manually before the unit resume normal running.
overcurrent of compressor	overcurrent protector of compressor	If the overcurrent of compressor 1 (compressor 2) is detected, the corresponding compressor will stop. If both compressors stop, the two fans will stop later. The error LED of the display board lights and the corresponding alarm symbol will be shown in "malfunction view". The error must be removed manually before the unit resume normal running.
temperature sensor protection	temperature sensor	The successive detecting time: if it is detected that the abnormality lasts for 5s, it is error; if it is detected that the normality lasts for 3s, it is normal. When the inflow water temperature sensor is wrong, all the compressor of this module will stop immediately. When the suction temperature sensor 1(2) is wrong, the corresponding compressor will stop. If both compressors stop, the fan will stop 30s later. As the outflow water temperature sensor is not related to the logic control, when there is error, the compressor will not stop, but the malfunction is displayed on the display board. When the anti-freezing temperature sensor and ambient temperature sensor is wrong, the compressor of this module will stop immediately and the fan will stop 30s later. If the defrosting sensor 1(2) is wrong, the corresponding compressor will stop during heating mode and cooling mode. If there is signal of temperature sensor malfunction and it resume to normal automatically, the error mark will be removed automatically. But if it occurs 3 times in one hour or it can not resume to normal automatically, it is necessary to remove it manually. The error LED of the display board lights and the corresponding alarm symbol will be shown in "malfunction view".
Water flow switch protection	mainboard contact	When a module detects that the water flow switch is closed (in normal state, when the water pump is running, the water flow switch is open) for 10s, the compressor of this module will stop and the fan will stop 30s later. The four-way valve remains the original state. The expansion valve keeps the initial steps. When water flow switch protection occurs for all the modules, the water pump will stop after the compressor stops for 10s.
communication error	mainboard	When the information of the display board is not received for 30s, this module will stop automatically. For the module with communication error, its water pump will stop 5 min after the compressor stops.

2 FLOW CHART OF TROUBLESHOOTING

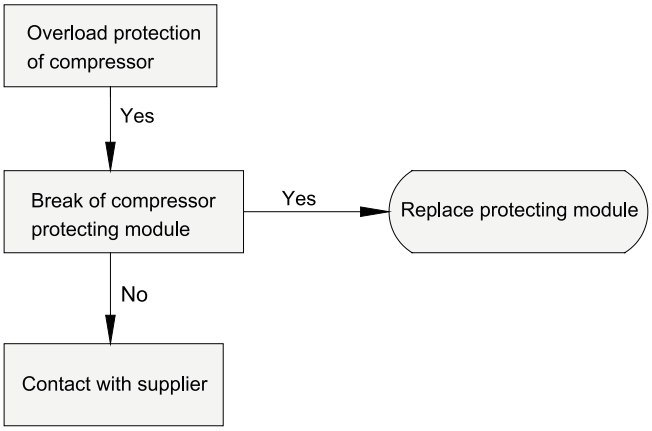
(1) High Pressure Protection(E1)


High pressure protection
Yes
Reverse of cooling and heating
Yes
Adjust operation mode
No
The fan stops running or reverses during cooling or the water pump is not open or with poor flow volume during heating
Yes
Check fan or water pump
No
Expansion valve is not open(capillary ruptures or leaks)
Yes
Replace expansion valve (capillary)
No
Pressure switch is broken (shall be normally closed) or the wiring is loose
Yes
Replace pressure switch or rewire
No
Fined heat exchanger is dirty or aging during cooling or shell tube seriously scales during heating
Yes
Clean heat exchanger
No
Filter blocks
Yes
Replace filter
No
Improper design of waterway pipeline and low flow volume upon stop of terminal
Yes
Adjust waterway pipeline
No
There is air in the system (usually happens after repair of unit)
Yes
Evacuate or vacuum pumping if necessary
No
Misdeclaring alarm of controller
Yes
Check if it happens frequently. If necessary, replace mainboard
No
Contact with supplier

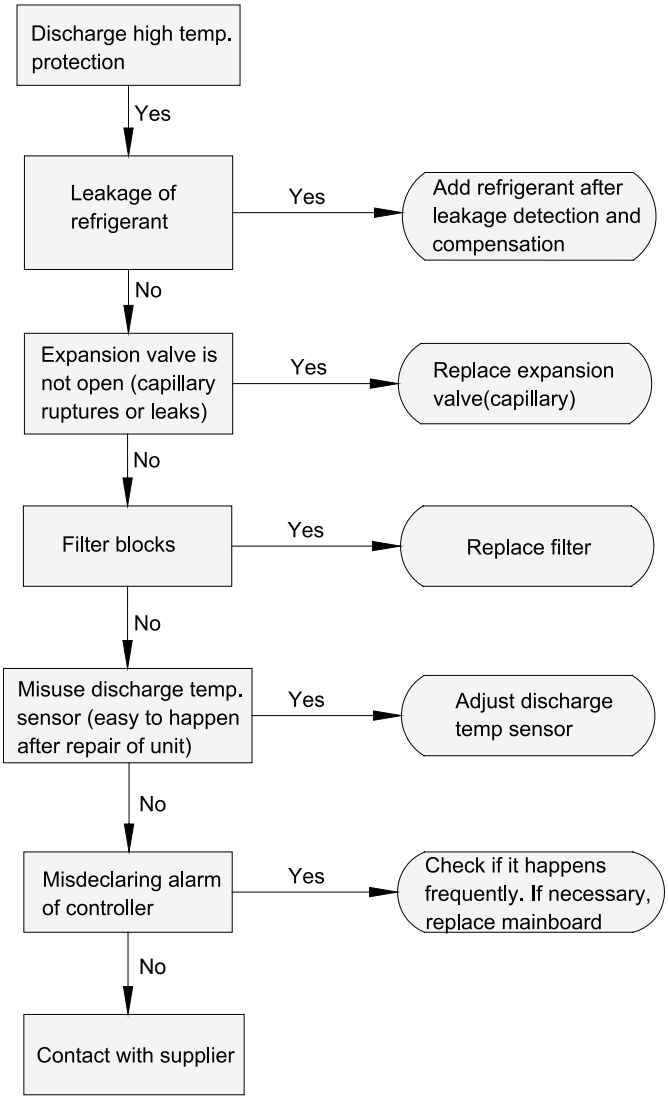
(2) Low Pressure Protection(E3)



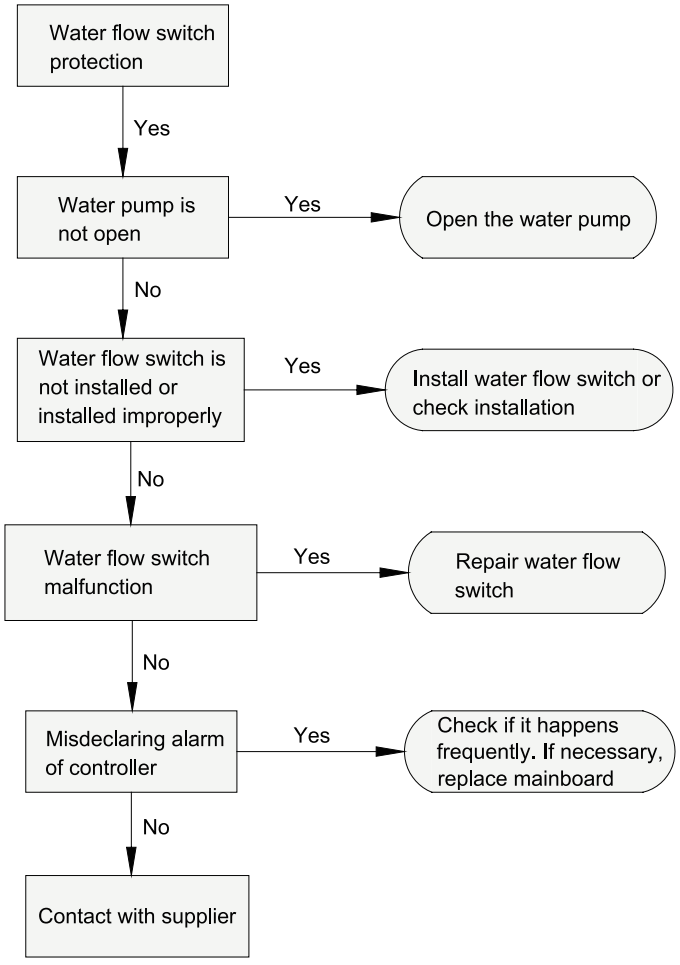
(3) Overload Protection(E5)



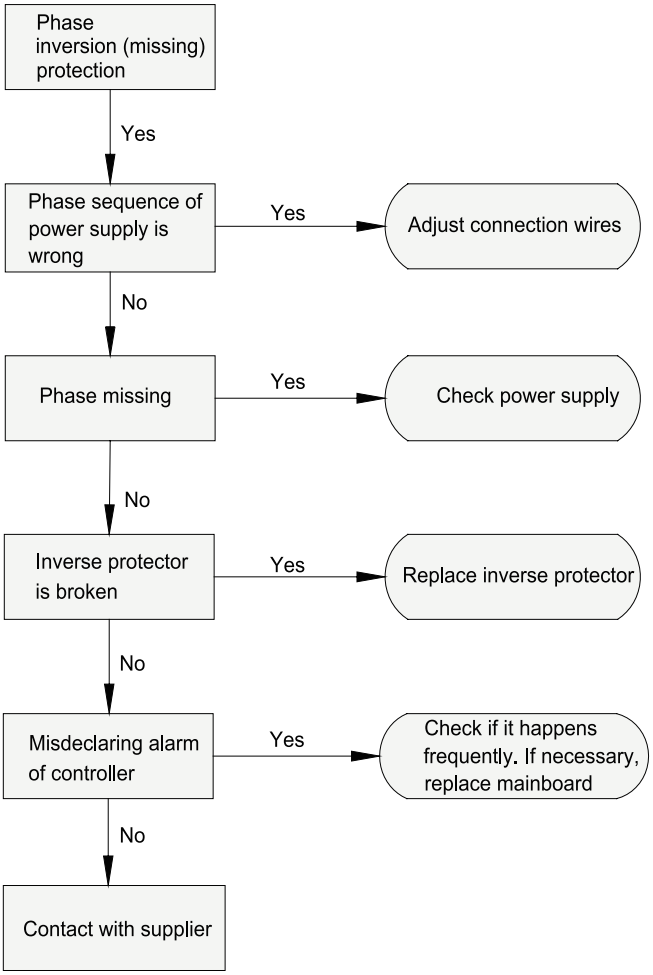
(4) Discharge High Temperature Protection(E4)



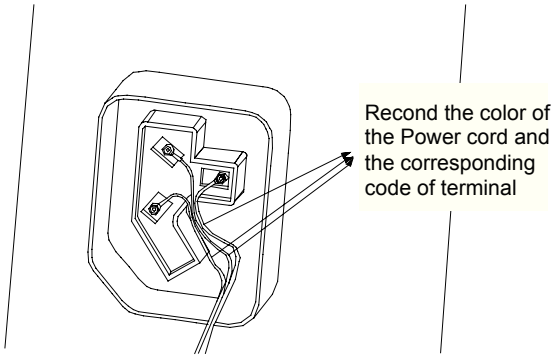
(5) Water Flow Switch Protection(EC)

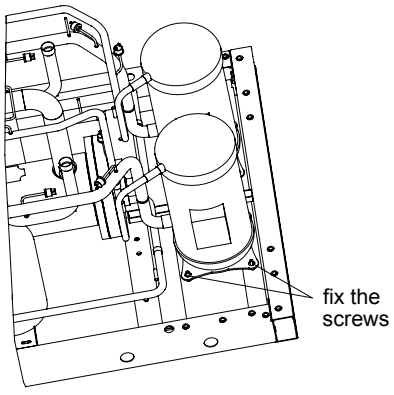
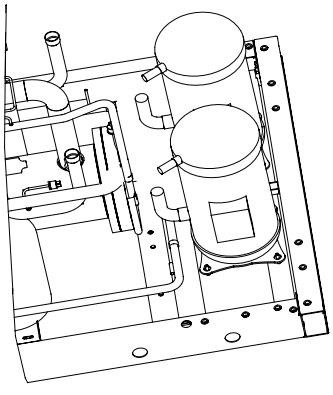
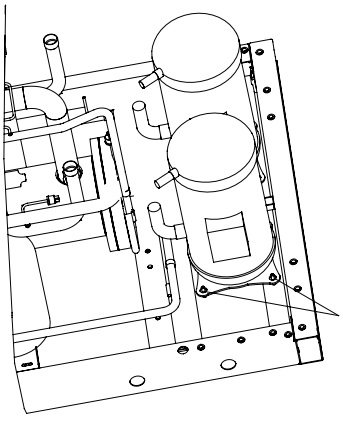
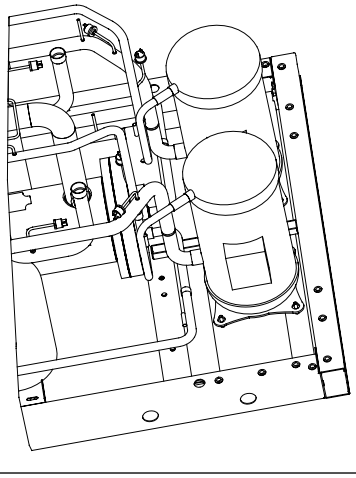


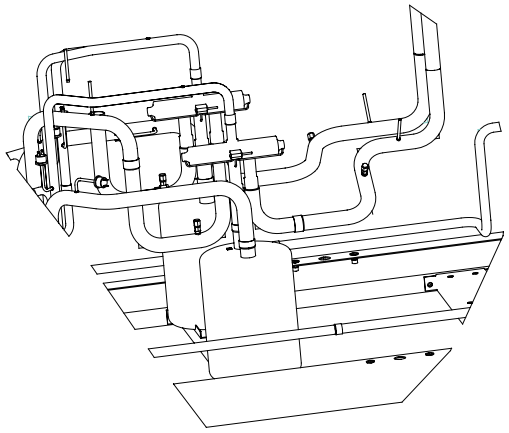
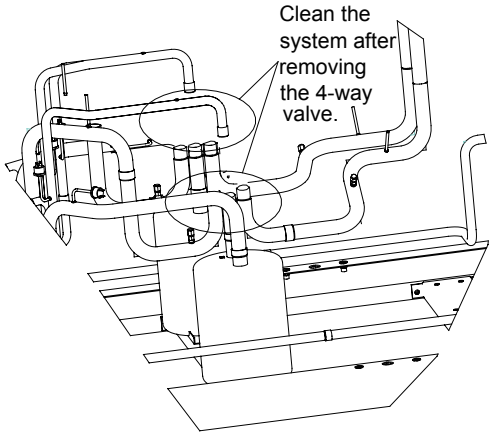
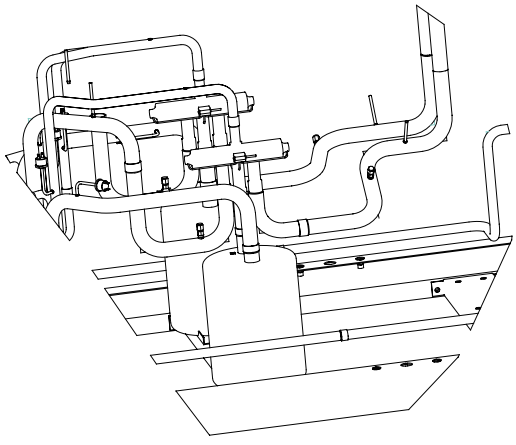
(6) Phase Inversion (missing) Protection(Power Off)

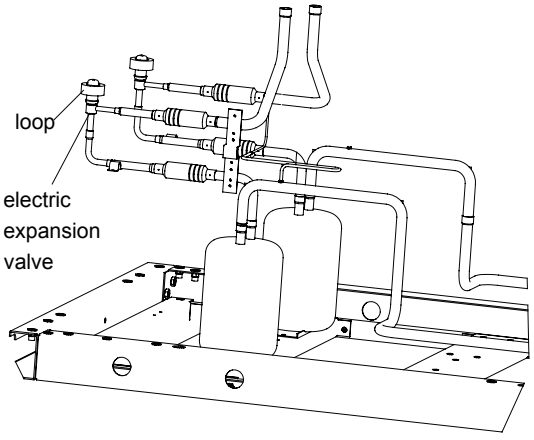
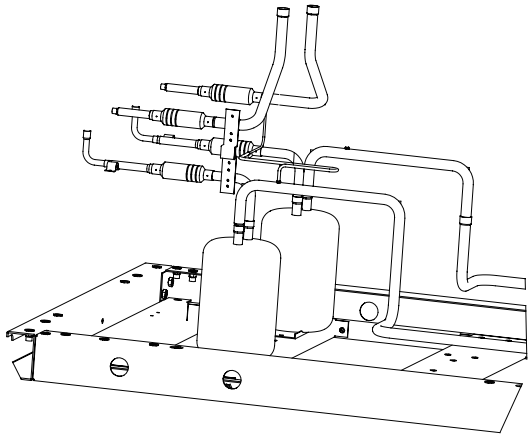
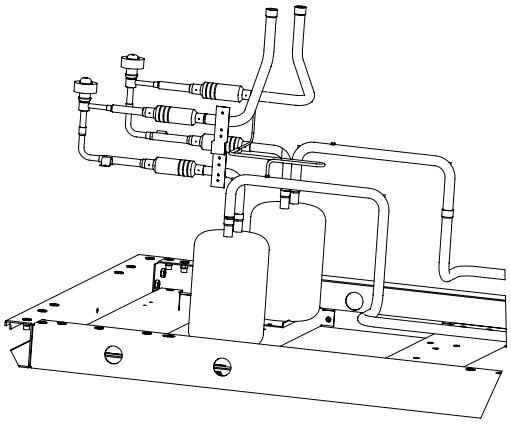


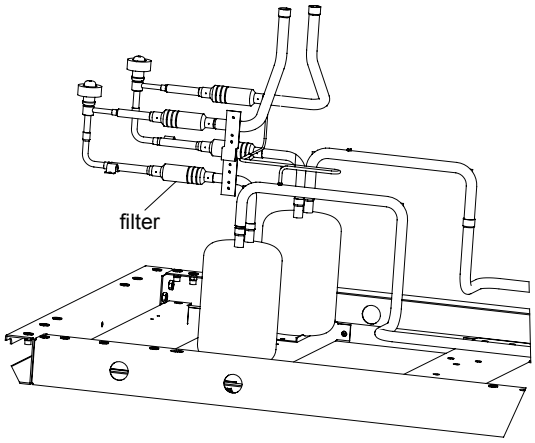
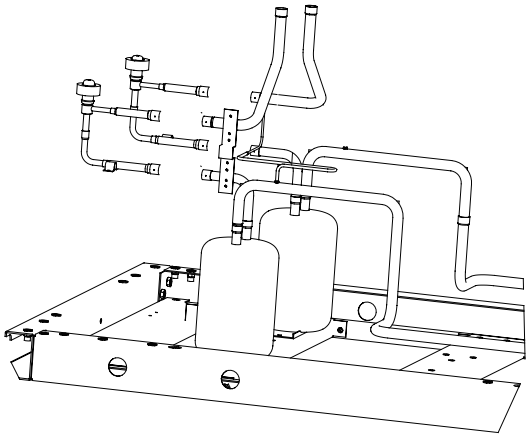
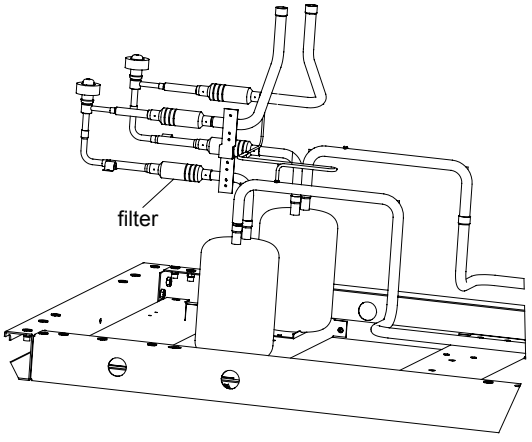
3 DISASSEMBLY AND ASSEMBLY PROCEDURE OF MAIN PARTS

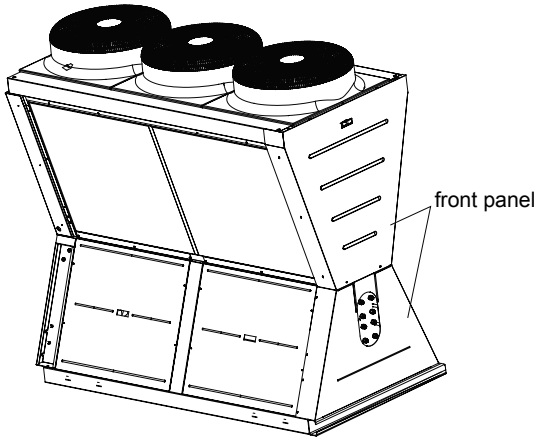
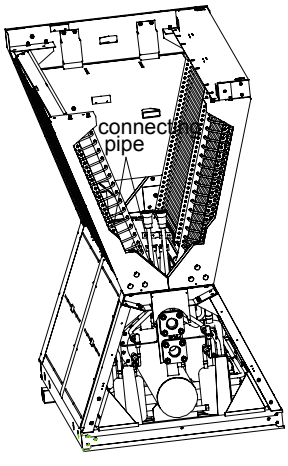
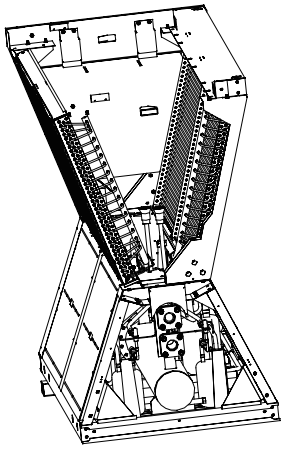
Disassembly and Assembly of Compressor		
Remarks: Make sure there isn't any refrigerant in pipe system and the power supply is cut off before removal of the compressor.		
Step	Diagram	Handling Instruction
1. Remove the power cord		1) Lossen the screw of the power cord. 2) Remove the power cord. 3) If the compressor has e-heater belt, it should be removed together. Note: when removing the power cord, mark the terminals in case of mistake.

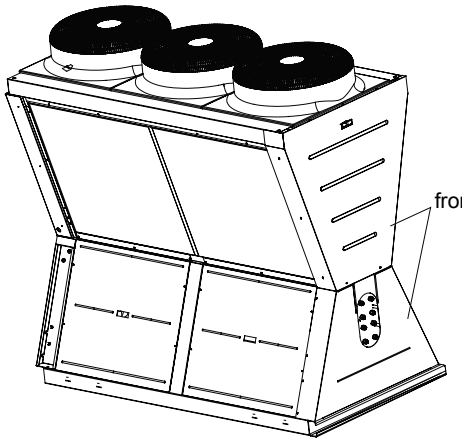
2. Loosen the screw of compressor the footing		1) Remove the screws of the compressor with coach wrench or box end wrench. 2) Put the screws together in case of loss.
3.Disconnect the compressor from the pipe.		1) Solder the pipe rapidly in case of overburning. 2) Do not damage the compressor for future analysis.
4.Remove the compressor from the chassis and fix a new one.		1) Do noe damage the rubber cushion when removing the compressor. 2) Seal the removed compressor in case of entery of moisture. 3) Put the new compressor on the rubber cushion. Put the steel bushing on the rubber cushion. 4) Tighten the screws until they reach the steel bushing,
5. Connect the air inlet and outlet of the compressor to the pipe. Check if the running of compressor is normal.		1) Connect the air inlet and out let pipe and weld them. It is requreied to charge nitrogen when welding. 2) Perform leak test with high pressure nitrogen. 3) Energize the unit and make the AC contactor of the compressor run for 2-3s. 4) When the compressor rotates inversely, there will be sharp noise.

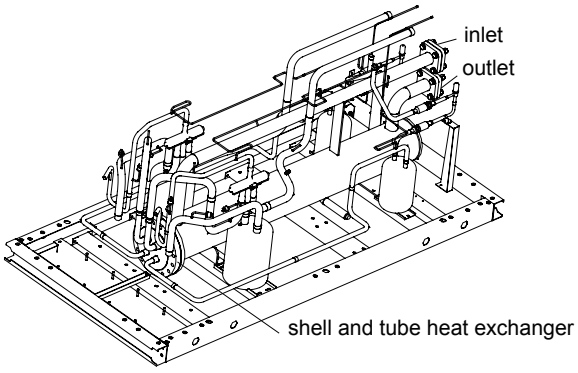
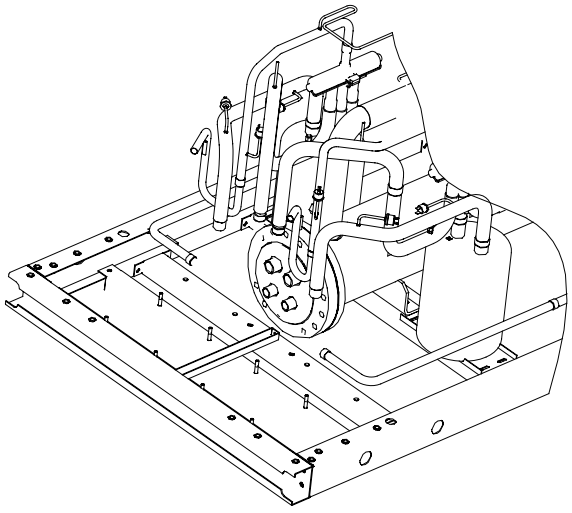
Disassembly and Assembly of 4-way valve		
Remark: Before disassembly, cut off the power and reclaim the refrigerant.		
Step	Diagram	Handling Instruction
1. Before welding, it is required to record its direction. The unit with dual system can not refer to the other system.		1) Before removing the four-way valve, record its installation direction. 2) Remove the wire. 3) Warp the four-way valve with wet cloth for future analysis. 4) Soder off the four-way valve.
2. Clean the system. The model of the new four-way valve should be the same as that of the original one. The piping should also be the same.		1) The model of the new four-way valve should be the same as that of the original one. If it is not clear, it should be confirmed by technician. 2) Warp the four-way valve with wet cloth. 3) connect the four-way valve with the four pipe according to the original direction. 4) Weld the pipes. 5) It is required to charge nitrogen when welding.
3. Vacuumize the system and recharge the refrigerant.		1) Ensure that the vacuum degree should each -1.0bar. as the unit needs to be repaired, the vaccum time should be longer. 2) Name and quality of the refrigerant should comply with the requirement on the nameplate.

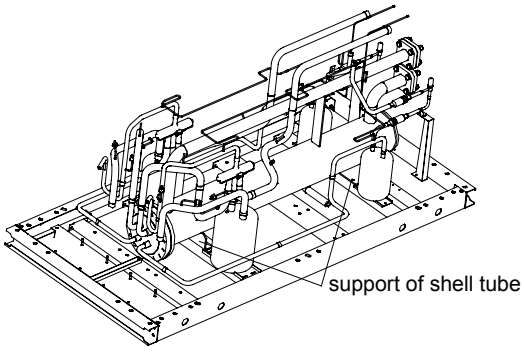
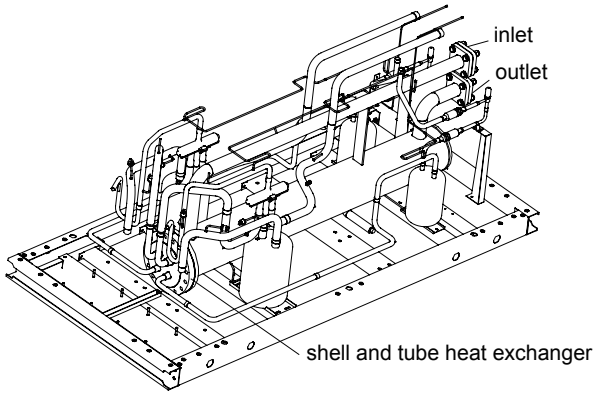
Disassembly and Assembly of electronic expansion valve		
Remark: Before disassembly, cut off the power and reclaim the refrigerant.		
Step	Diagram	Handling Instruction
1. Reclaim the refrigerant.		1) Cut off the power. 2) Reclaim the refrigerant.
2. Remove the expansion valve.		1) Remove the wire from the valve. 2) Record the installation direction of the eletric expansion valve. 3) Warp the expansion valve and the filter with wet cloth for the sake of their integrality. 4) Solder off the expansion valve.
3. Mount the new expansion valve.		1) Mount the new expansion valve of the same model. 2) Warp the expansion valve with wet clith. Mount it and connect the pipe. 3) Weld it with the welding gun. 4) After the pipe cools, install the wire. Note: It is required to charge nitrogen when welding.

Disassembly and Assembly of filter		
Remark: Before disassembly, cut off the power and reclaim the refrigerant.		
Step	Diagram	Handling Instruction
1. Reclaim the refrigerant.		1) Cut off the power. 2) Reclaim the refrigerant.
2. Remove the filer.		1) Record the installation direction of the filter before removing it. 2) Warp the expansion valve and the filter with wet cloth for the sake of their integrality. 3) Solder off the filter.
3. Mount the new filter.		1) Mount the new filter of the same model. 2) Warp the new filter with wet cloth. Install it and connect the pipe. 3) Weld it with the welding gun. Note: It is required to charge nitrogen when welding.

Disassembly and Assembly of Condenser		
Remark: Before disassembly, cut off the power and reclaim the refrigerant.		
Step	Diagram	Handling Instruction
1. Remove the front panel as shown on the right diagram. (The replacement of front condenser is the example.)		1) Completely reclaim the refrigerant. 2) Cut off the power. 3) Remove the fan subassembly. Cut off the power of the fan and remove the outer sheet metal of the condenser.
2. weld the inlet and outlet pipe of the condenser. Pay attention to the direction of the flame in case of burning the fin and the sheet metal of the condenser.		1) Solder off the connecting pipe of the condenser according to the left diagram.
3. Remove the pipe clamp fixing separator and weld the two lower pipes of the condenser.		1) Remove the steady rest. 2) Solder off the conntecting pipe of the condenser according to the left diagram.

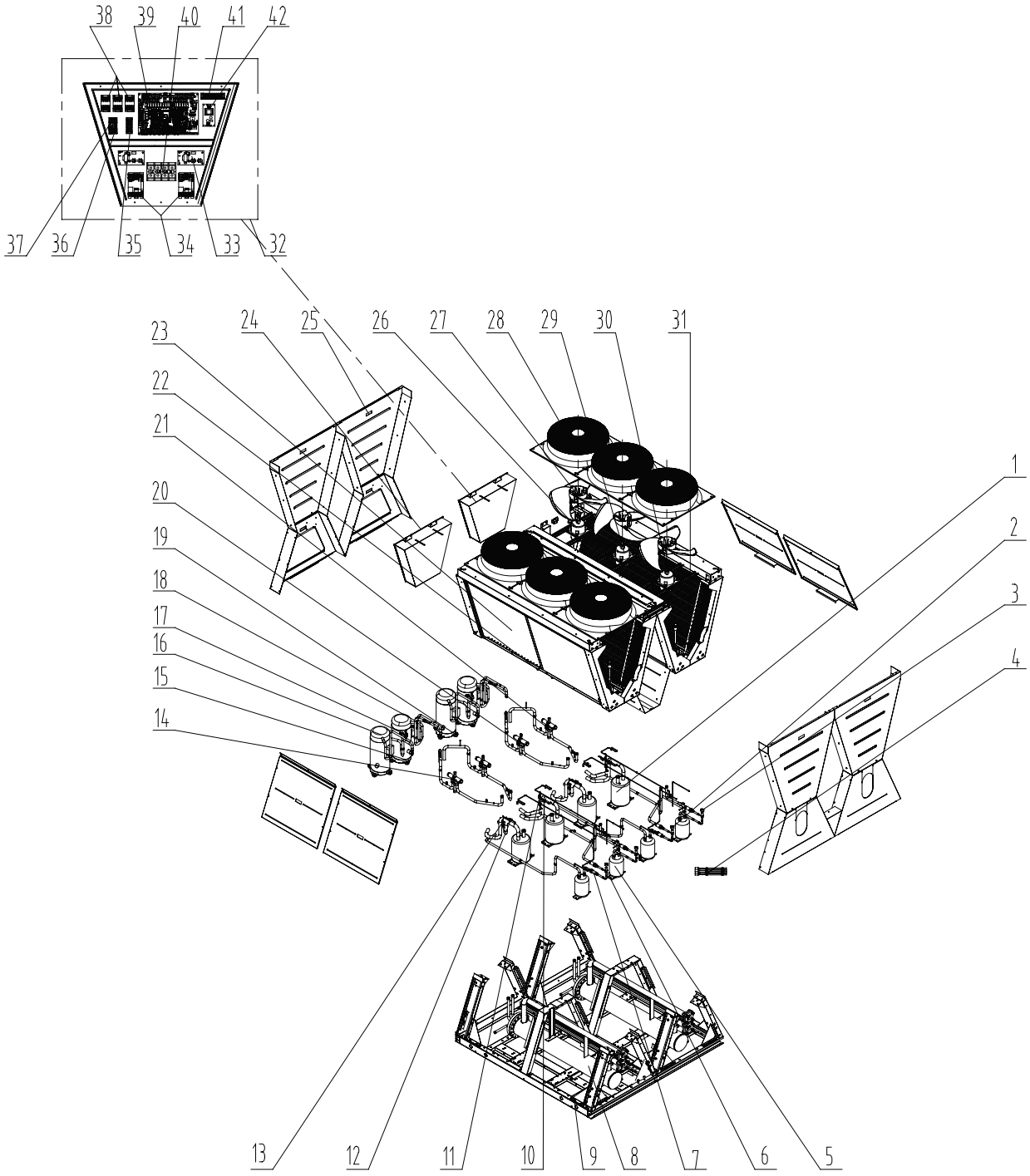
4. Mount the new condenser, the fan and the sheet metal.		1) Mount the new condenser according to the steps of disassembly. 2) Weld the connecting pipe. Note: It is required to charge nitrogen when welding. 3) When reconnect the power cord of the fan motor, pay attention to the sequence.

Disassembly and Assembly of evaporator		
Remark: Before disassembly, cut off the power and reclaim the refrigerant.		
Step	Diagram	Handling Instruction
1. Loosen the inlet and outlet port and remove the front panel.		1) Discharge the water in the pipe. 2) Remove the pipe connected with shell and tube. 3) Remove the sheet metal on the lower part of the unit.
2. Solder off the pipe connected with the heat exchanger. (the heat exchanger of different unit is different, so it is required to record the connection in case of wrong connection.)		1) Warp the soldering point of the copper pipe and pipe sheet with wet cloth. 2) Remove the for pipes with welding gun.

3. Loosen the 4 screws on the support abutment of the shell and tube heat exchanger.		1) Remove the 4 screws fixing the shell and tube. 2) Remove the shell and tube.
4. Mount the new shell and tube and connect the pipe.		1) Mount the new shell and tube of the same model. 2) Warp the soldering point of the copper pipe and pipe sheet with wet cloth. Weld the pipe. Note: It is required to charge nitrogen when welding. 3) Connect the water pipe. 4) Mount the sheet metal.

4 EXPLODED VIEWS AND PART LIST

(1) Model: LSQWRF130MG/NaC-M、LSQWRF160MG/NaC-M



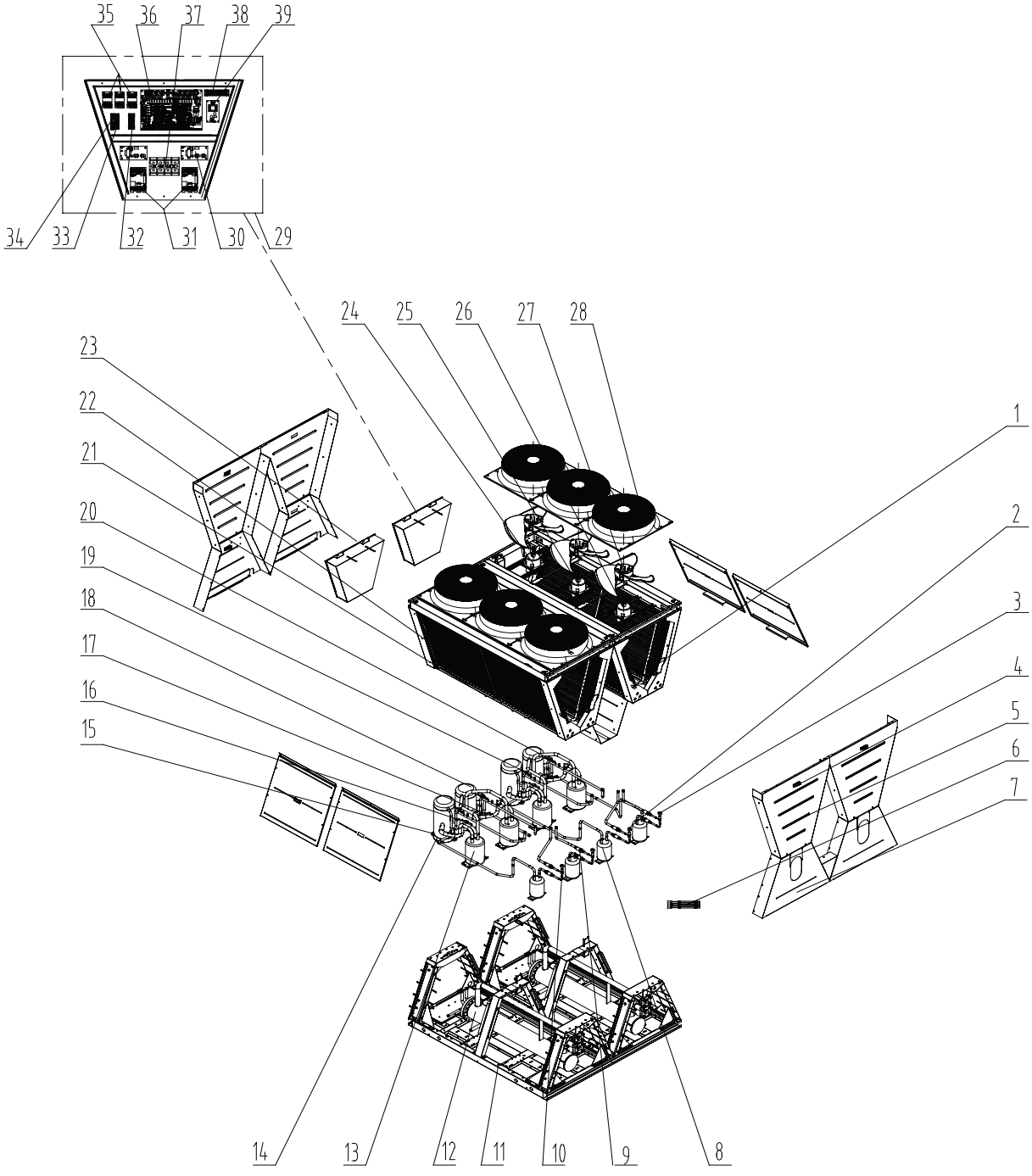
Parts List: LSQWRF130MG/NaC-M for EL01500290

No.	Name of part	Part code
1	Gas-liquid Separator	07421111
2	Electric expand valve fitting	4300010824
3	Electric expand valve fitting	4300010825
4	Sensor sub-assy	39001111G
5	Accumulator	07422206
6	Electronic Expansion Valve	07130364
7	Strainer	07210037
8	Dry Evaporator	0105880901
9	Chassis Assy	01191122P
10	Pressure Protect Switch	4602001513
11	Pressure Protect Switch	460200157
12	Pressure Protect Switch	4602001515
13	Pressure Protect Switch	4602001512
14	4-way Valve	43000339
15	Electrical Heater	76515211
16	Compressor and Fittings	00201121
17	Pressure Protect Switch	4602001547
18	Pressure Protect Switch	4602001546
19	Compressor Gasket	02118049
20	Magnet Coil	4300040049
21	Magnet Coil	4300040048
22	Drainage Pipe Sub-assy	05238201
23	Condenser Assy 1	0112113601
24	Electric Cabinet Assy	01391179
25	Handle	26235253
26	Fan Motor	1570320201
27	Axial Flow Fan Sub-Assy	10338702
28	Streamlined Dome	26904101
29	Fan Motor	1570320202
30	Fan Motor	1570320203
31	Condenser assy 2	0112113501
32	Electric Cabinet Assy	01391178
33	Over Current Protector	46020120
34	AC Contactor	44010240
35	Terminal Board	420111251
36	Phase Reverse Protector	46020054
37	Single-phase Air Switch	45020203
38	AC Contactor	44010229
39	Main Board	30220034
40	Terminal Board	42010247
41	Terminal Board	42011135
42	Main Board	30222007

Parts List: LSQWRF160MG/NaC-M for EL01500330

No.	Name of part	Part code
1	Gas-liquid Separator	07421111
2	Electric expand valve fitting	4300010824
3	Electric expand valve fitting	4300010825
4	Sensor sub-assy	39001111G
5	Accumulator	07422206
6	Electronic Expansion Valve	07130364
7	Strainer	07210037
8	Dry Evaporator	01058809
9	Chassis Assy	01191122P
10	Pressure Protect Switch	4602001513
11	Pressure Protect Switch	460200157
12	Pressure Protect Switch	4602001515
13	Pressure Protect Switch	4602001512
14	4-way Valve	43000339
15	Electrical Heater	76515211
16	Compressor and Fittings	00208044B
17	Pressure Protect Switch	4602001547
18	Pressure Protect Switch	4602001546
19	Compressor Gasket	02118049
20	Magnet Coil	4300040049
21	Magnet Coil	4300040048
22	Drainage Pipe Sub-assy	05238201
23	Condenser Assy 1	0112113701
24	Electric Cabinet Assy	01391326
25	Handle	26235253
26	Fan Motor	1570320201
27	Axial Flow Fan Sub-Assy	10338702
28	Streamlined Dome	26904101
29	Fan Motor	1570320202
30	Fan Motor	1570320203
31	Condenser assy 2	0112113801
32	Electric Cabinet Assy	01391326
33	Over Current Protector	46020121
34	AC Contactor	44010240
35	Terminal Board	420111251
36	Phase Reverse Protector	46020054
37	Single-phase Air Switch	45020203
38	AC Contactor	44010229
39	Main Board	30220034
40	Terminal Board	42010247
41	Terminal Board	42011135
42	Main Board	30222007

(2) Model: LSQWF130MG/NaC-M、LSQWF160MG/NaC-M



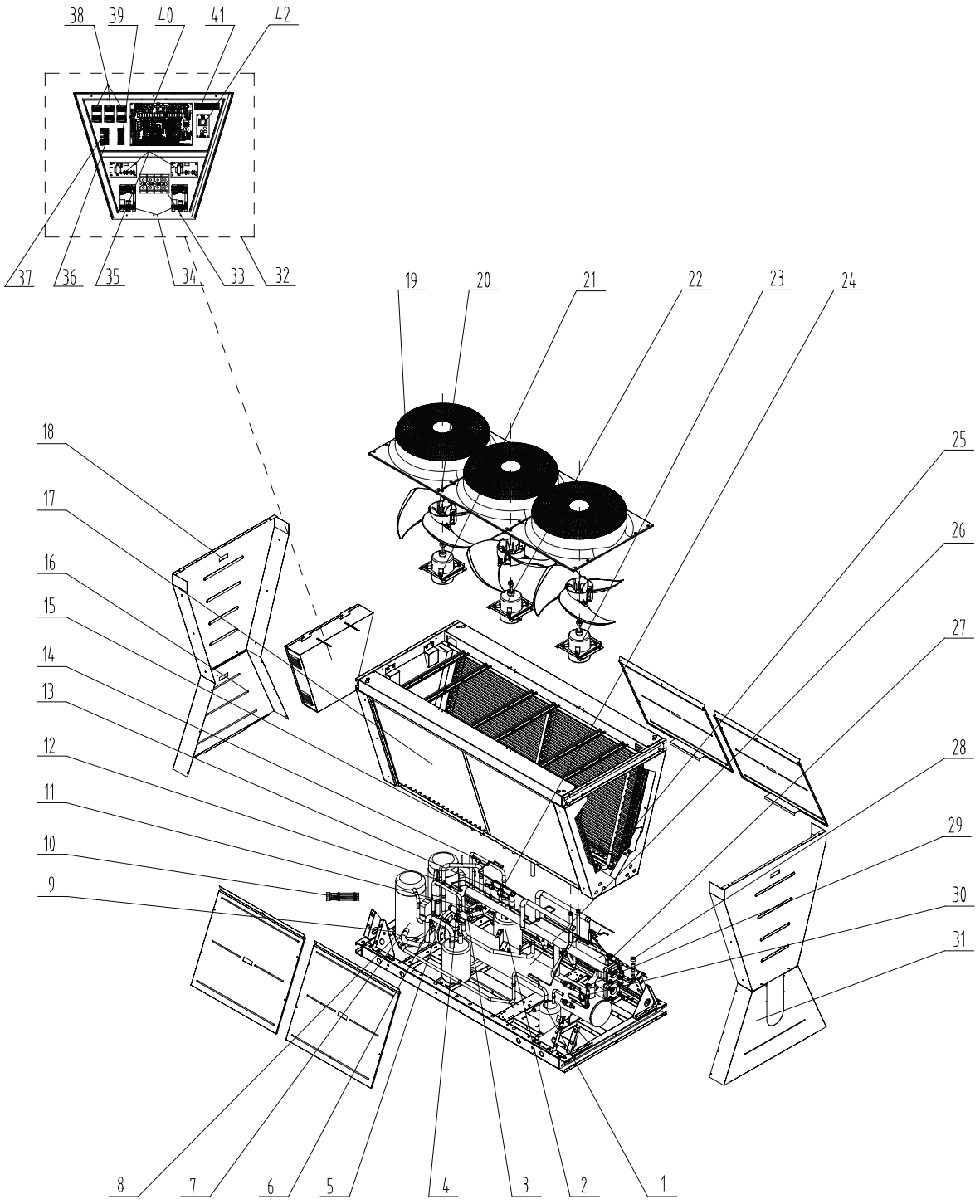
Parts List: LSQWF130MG/NaC-M for EL01500300

No.	Name of part	Part code
1	Condenser assy 2	0112113401
2	Electric expand valve fitting	4300010825
3	Electric expand valve fitting	4300010824
4	Handle	26235253
5	Upper Front Panel	01541146P
6	Sensor sub-assy	39001111G
7	Lower Panel	01541123P
8	Accumulator	07422206
9	Strainer	07210037
10	Electronic Expansion Valve	07130364
11	Chassis Assy	01191122P
12	Dry Evaporator	0105880901
13	Gas-liquid Separator	07421111
14	Electrical Heater	76515211
15	Compressor Gasket	02118049
16	Pressure Protect Switch	4602001515
17	Pressure Protect Switch	4602001513
18	Compressor and Fittings	00201121
19	Pressure Protect Switch	4602001547
20	Pressure Protect Switch	4602001546
21	Drainage Pipe Sub-assy	05238201
22	Condenser assy 1	0112113301
23	Electric Cabinet Assy	01391201
24	Fan Motor	1570320201
25	Fan Motor	1570320202
26	Fan Motor	1570320203
27	Axial Flow Fan Sub-Assy	10338702
28	Streamlined Dome	26904101
29	Electric Cabinet Assy	01391186
30	Over Current Protector	46020120
31	AC Contactor	44010240
32	Terminal Board	420111251
33	Phase Reverse Protector	46020054
34	Single-phase Air Switch	45020203
35	AC Contactor	44010229
36	Main Board	30220034
37	Terminal Board	42010247
38	Terminal Board	42011135
39	Main Board	30222007

Parts List: LSQWF160MG/NaC-M for EL01500340

No.	Name of part	Part code
1	Condenser assy 2	0112114101
2	Electric expand valve fitting	4300010825
3	Electric expand valve fitting	4300010824
4	Handle	26235253
5	Upper Front Panel	01541146P
6	Sensor sub-assy	39001111G
7	Lower Panel	01541123P
8	Accumulator	07422206
9	Strainer	07210037
10	Electronic Expansion Valve	07130364
11	Chassis Assy	01191122P
12	Dry Evaporator	01058809
13	Gas-liquid Separator	07421111
14	Electrical Heater	76515211
15	Compressor Gasket	02118049
16	Pressure Protect Switch	4602001515
17	Pressure Protect Switch	4602001513
18	Compressor and Fittings	00201121
19	Pressure Protect Switch	4602001547
20	Pressure Protect Switch	4602001546
21	Drainage Pipe Sub-assy	05238201
22	Condenser assy 1	0112114001
23	Electric Cabinet Assy	01391205
24	Fan Motor	1570320201
25	Fan Motor	1570320202
26	Fan Motor	1570320203
27	Axial Flow Fan Sub-Assy	10338702
28	Streamlined Dome	26904101
29	Electric Cabinet Assy	01391204
30	Over Current Protector	46020121
31	AC Contactor	44010240
32	Terminal Board	420111251
33	Phase Reverse Protector	46020054
34	Single-phase Air Switch	45020203
35	AC Contactor	44010229
36	Main Board	30220034
37	Terminal Board	42010247
38	Terminal Board	42011135
39	Main Board	30222007

(3) Model: LSQWRF65MG/NaC-M、LSQWRF80MG/NaC-M



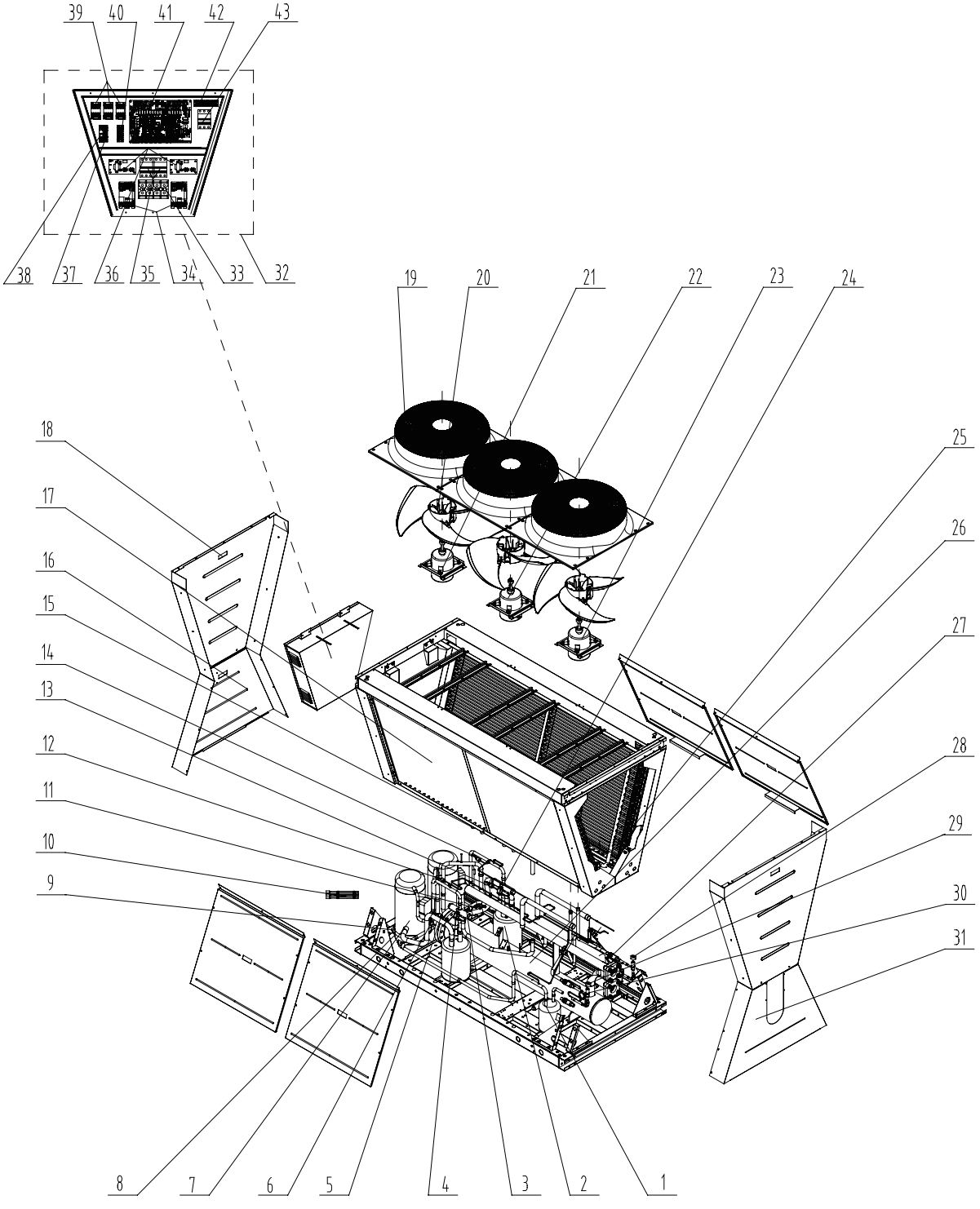
Parts List: LSQWRF65MG/NaC-M for EL01500310

No.	Name of part	Part code
1	Accumulator	07422206
2	Gas-liquid Separator	07421111
3	4-way Valve	43000339
4	Magnet Coil	4300040049
5	Pressure Protect Switch	4602001512
6	Pressure Protect Switch	4602001515
7	Compressor and Fittings	00201121
8	Electrical Heater	76515211
9	Compressor Gasket	02118049
10	Sensor sub-assy	39001111G
11	Pressure Protect Switch	4602001513
12	Pressure Protect Switch	4602001546
13	Pressure Protect Switch	4602001547
14	Pressure Protect Switch	460200157
15	Drainage Pipe Sub-assy	05238201
16	Lower Panel	01541119P
17	Condenser Assy 1	0112113601
18	Handle	26235253
19	Streamlined Dome	26904101
20	Axial Flow Fan Sub-Assy	10338702
21	Fan Motor	1570320201
22	Fan Motor	1570320202
23	Fan Motor	1570320203
24	Magnet Coil	4300040048
25	Condenser assy 2	0112113501
26	Dry Evaporator	0105880901
27	Strainer	07210037
28	Electric expand valve fitting	4300010824
29	Electric expand valve fitting	4300010825
30	Electronic Expansion Valve	07130364
31	Lower Panel	01541123P
32	Electric Cabinet Assy	01391179
33	Terminal Board	42010247
34	AC Contactor	44010240
35	Over Current Protector	46020120
36	Phase Reverse Protector	46020054
37	Single-phase Air Switch	45020203
38	AC Contactor	44010229
39	Terminal Board	420111251
40	Main Board	30220034
41	Terminal Board	42011135
42	Main Board	30222007

Parts List: LSQWRF80MG/NaC-M for EL01500350

No.	Name of part	Part code
1	Accumulator	07422206
2	Gas-liquid Separator	07421111
3	4-way Valve	43000339
4	Magnet Coil	4300040049
5	Pressure Protect Switch	4602001512
6	Pressure Protect Switch	4602001515
7	Compressor and Fittings	00208044B
8	Electrical Heater	76515211
9	Compressor Gasket	02118049
10	Sensor sub-assy	39001111G
11	Pressure Protect Switch	4602001513
12	Pressure Protect Switch	4602001546
13	Pressure Protect Switch	4602001547
14	Pressure Protect Switch	460200157
15	Drainage Pipe Sub-assy	05238201
16	Lower Panel	01541119P
17	Condenser Assy 1	0112113703
18	Handle	26235253
19	Streamlined Dome	26904101
20	Axial Flow Fan Sub-Assy	10338702
21	Fan Motor	1570320201
22	Fan Motor	1570320202
23	Fan Motor	1570320203
24	Magnet Coil	4300040048
25	Condenser assy 2	0112113803
26	Dry Evaporator	01058809
27	Strainer	07210037
28	Electric expand valve fitting	4300010824
29	Electric expand valve fitting	4300010825
30	Electronic Expansion Valve	07130364
31	Lower Panel	01541123P
32	Electric Cabinet Assy	01391325
33	Terminal Board	42010247
34	AC Contactor	44010240
35	Over Current Protector	46020121
36	Phase Reverse Protector	46020054
37	Single-phase Air Switch	45020203
38	AC Contactor	44010229
39	Terminal Board	420111251
40	Main Board	30220034
41	Terminal Board	42011135
42	Main Board	30222007

(4) Model: LSQWRF65MG/NaC-M、LSQWRF80MG/NaC-M



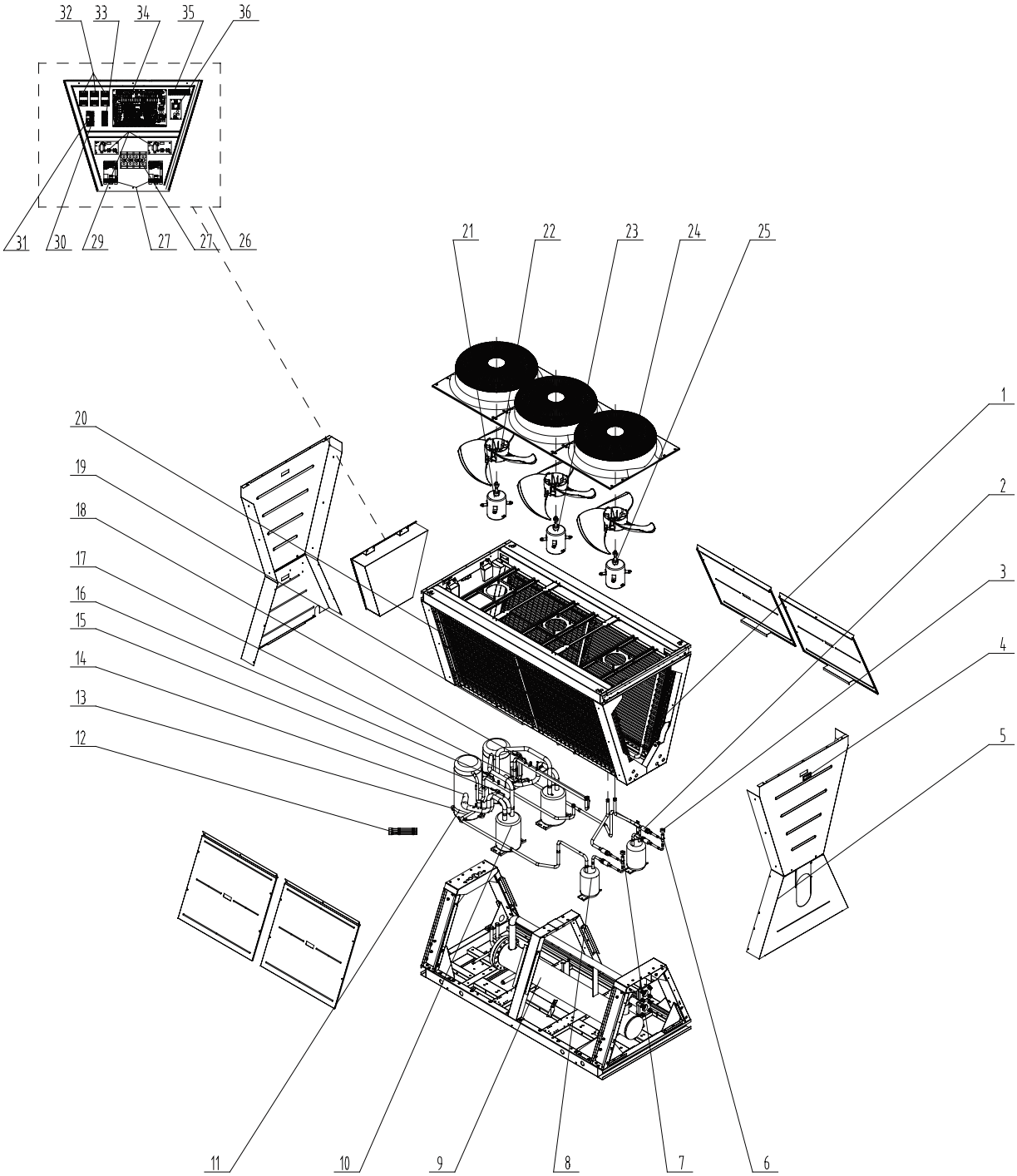
Parts List: LSQWRF65MG/NaC-M for EL01500311

No.	Name of part	Part code
1	Accumulator	07428818
2	Gas-liquid Separator	07428819
3	4-way Valve	43000339
4	Magnet Coil	4300040049
5	Pressure Protect Switch	4602001512
6	Pressure Protect Switch	4602001515
7	Compressor and Fittings	00201121
8	Electrical Heater	76515211
9	Compressor Gasket	02118049
10	Sensor sub-assy	39001111G
11	Pressure Protect Switch	4602001513
12	Pressure Protect Switch	4602001546
13	Pressure Protect Switch	4602001547
14	Pressure Protect Switch	460200157
15	Drainage Pipe Sub-assy	05238201
16	Lower Panel	01541119P
17	Condenser Assy 1	0112113601
18	Handle	26235253
19	Streamlined Dome	26904101
20	Axial Flow Fan Sub-Assy	10338702
21	Fan Motor	1570320201
22	Fan Motor	1570320202
23	Fan Motor	1570320203
24	Magnet Coil	4300040048
25	Condenser assy 2	0112113501
26	Dry Evaporator	0105885201
27	Strainer	07210037
28	Electric expand valve fitting	4300010824
29	Electric expand valve fitting	4300010825
30	Electronic Expansion Valve	07130364
31	Lower Panel	01541123P
32	Electric Cabinet Assy	01391357
33	Terminal Board	42010247
34	AC Contactor	44010240
35	Overcurrent Circuit Breaker	4602802208
36	Over Current Protector	46020120
37	Phase Reverse Protector	46020054
38	Single-phase Air Switch	45020203
39	AC Contactor	44010229
40	Terminal Board	420111251
41	Main Board	30220034
42	Terminal Board	42011135
43	Overcurrent Circuit Breaker	46028022

Parts List: LSQWRF80MG/NaC-M for EL01500351

No.	Name of part	Part code
1	Accumulator	07428818
2	Gas-liquid Separator	07428819
3	4-way Valve	43000339
4	Magnet Coil	4300040049
5	Pressure Protect Switch	4602001512
6	Pressure Protect Switch	4602001515
7	Compressor and Fittings	00208044B
8	Electrical Heater	76515211
9	Compressor Gasket	02118049
10	Sensor sub-assy	39001111G
11	Pressure Protect Switch	4602001513
12	Pressure Protect Switch	4602001546
13	Pressure Protect Switch	4602001547
14	Pressure Protect Switch	460200157
15	Drainage Pipe Sub-assy	05238201
16	Lower Panel	01541119P
17	Condenser Assy 1	0112113703
18	Handle	26235253
19	Streamlined Dome	26904101
20	Axial Flow Fan Sub-Assy	10338702
21	Fan Motor	1570320201
22	Fan Motor	1570320202
23	Fan Motor	1570320203
24	Magnet Coil	4300040048
25	Condenser assy 2	0112113803
26	Dry Evaporator	01058852
27	Strainer	07210037
28	Electric expand valve fitting	4300010824
29	Electric expand valve fitting	4300010825
30	Electronic Expansion Valve	07130364
31	Lower Panel	01541123P
32	Electric Cabinet Assy	01391237
33	Terminal Board	42010247
34	AC Contactor	44010240
35	Overcurrent Circuit Breaker	4602802208
36	Over Current Protector	46020121
37	Phase Reverse Protector	46020054
38	Single-phase Air Switch	45020203
39	AC Contactor	44010229
40	Terminal Board	420111251
41	Main Board	30220034
42	Terminal Board	42011135
43	Overcurrent Circuit Breaker	46028022

(5) Model: LSQWF65MG/NaC-M、LSQWF80MG/NaC-M



Parts List: LSQWF65MG/NaC-M for EL01500320

No.	Name of part	Part code
1	Condenser assy 2	0112113401
2	Strainer	07210037
3	Electric expand valve fitting	4300010824
4	Handle	26235253
5	Lower Panel	01541123P
6	Electronic Expansion Valve	07130364
7	Electric expand valve fitting	4300010825
8	Accumulator	07422206
9	Dry Evaporator	0105880901
10	Gas-liquid Separator	07421111
11	Electrical Heater	76515211
12	Sensor sub-assy	39001111G
13	Compressor Gasket	02118049
14	Compressor and fittings	00201121
15	Pressure Protect Switch	4602001515
16	Pressure Protect Switch	4602001547
17	Pressure Protect Switch	4602001513
18	Pressure Protect Switch	4602001546
19	Drainage Pipe Sub-assy	05238201
20	Condenser assy 1	0112113301
21	Fan Motor	1570320201
22	Axial Flow Fan Sub-Assy	10338702
23	Fan Motor	1570320202
24	Streamlined Dome	26904101
25	Fan Motor	1570320203
26	Electric Cabinet Assy	01391201
27	Terminal Board	42010247
28	AC Contactor	44010240
29	Over Current Protector	46020120
30	Phase Reverse Protector	46020054
31	Single-phase Air Switch	45020203
32	AC Contactor	44010229
33	Terminal Board	420111251
34	Main Board	30220034
35	Terminal Board	42011135
36	Main Board	30222007

Parts List: LSQWF80MG/NaC-M for EL01500360、EL01500361

No.	Name of part	Part code
1	Condenser assy 2	0112113401
2	Strainer	07210037
3	Electric expand valve fitting	4300010824
4	Handle	26235253
5	Lower Panel	01541123P
6	Electronic Expansion Valve	07130364
7	Electric expand valve fitting	4300010825
8	Accumulator	07422206
9	Dry Evaporator	01058809
10	Gas-liquid Separator	07421111
11	Electrical Heater	76515211
12	Sensor sub-assy	39001111G
13	Compressor Gasket	02118049
14	Compressor and fittings	00208044B
15	Pressure Protect Switch	4602001515
16	Pressure Protect Switch	4602001547
17	Pressure Protect Switch	4602001513
18	Pressure Protect Switch	4602001546
19	Drainage Pipe Sub-assy	05238201
20	Condenser assy 1	0112114001
21	Fan Motor	1570320201
22	Axial Flow Fan Sub-Assy	10338702
23	Fan Motor	1570320202
24	Streamlined Dome	26904101
25	Fan Motor	1570320203
26	Electric Cabinet Assy	01391205 ① 01391225 ②
27	Terminal Board	42010247
28	AC Contactor	44010240
29	Over Current Protector	46020121
30	Phase Reverse Protector	46020054
31	Single-phase Air Switch	45020203
32	AC Contactor	44010229
33	Terminal Board	420111251
34	Main Board	30220034 ① 30222613 ②
35	Terminal Board	42011135
36	Main Board	30222007 ① / ②

Note:

a.The parts which are labeled " ① " are only used in EL01500360.

b.The parts which are labeled " ② " are only used in EL01500361.

JF00300262

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
Tel: (+86-756) 8522218 Fax: (+86-756) 8669426
E-mail: gree@gree.com.cn www.gree.com

For continuous improvement in the products, Gree reserves the right to modidy the product specification and appearance in this manual without notice and without incurring any obligations.